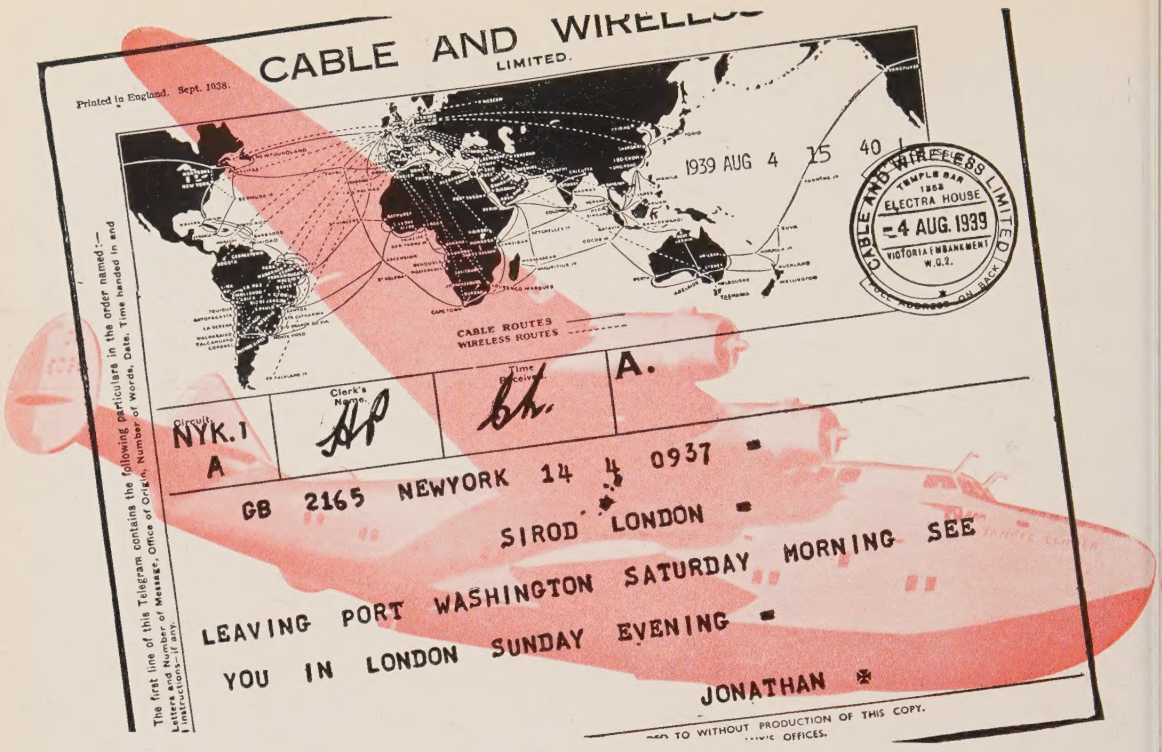
THE GEOGRAPHICAL MAGAZINE

OLUME IX, NO. 5 ONE SHILLING MONTHLY SEPTEMBER 1939



Plucking still another hair from Father Time's beard!

On Saturday morning, July 8, the 'Yankee Clipper' skimmed over the waters at Port Washington, soared into the sky and pointed her nose out over the Atlantic. Early in the evening of the following day she zoomed down and came smoothly to rest on Southampton Water. The first commercial passenger flight by 'plane across the North Atlantic to Britain had been accomplished!

And so there was forged yet another historic link in the chain of development. Passengers are now flying to and from the New World as unconcernedly as they do on the other great air routes of the world. Look back a bare thirty-five years to the 'crazy' pioneer days of the Wright brothers—*and rub your eyes!*

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PHOTOGRAPHIC NOTES

Edited by F. S. Smythe

30. THE PHOTOGRAPHER'S MODEL

Professional photographers who make pictures for advertising and publicity purposes, employ professional models to pose for them. No professional photographer intent upon turning out a really satisfactory piece of work would consider for one moment the use of an amateur model as the subject of his photograph.

Professional models take considerable pride in the frequency of their appearance in newspapers, magazines and on posters. Some expert models earn salaries as large as those of accomplished actors and actresses, while a host of less well-paid professionals gain a comfortable living through what is, after all, a highly skilled trade.

It is necessary to say this in order to bring home to the amateur photographer a rather important point: however skilled he may be, the amateur is not likely to produce the lively, natural portraits of the professional unless the models he uses are equally skilled. So this month these notes are dedicated, not to photographers, but to the photographers' models.

A photograph taken by a professional photographer working with a professional model. This type of portrait is rarely achieved even by the serious amateur unless the model, too, takes photography seriously

Of course some amateur photographers have overcome the difficulty quite simply by ringing up a professional agency and engaging a professional model. The minimum fee for a day's work is 1 guinea, so that not many of us can afford this undoubted luxury in the home studio.

If the amateur model is to pose successfully, she (or he) must realise that posing is an art—an art with a recognised and difficult technique which can be achieved only through practice; an art, the execution of which should be as amusing as it is lucrative for those who practise it for a living.

In the first place, the amateur model should keep in mind that posing is very much akin to acting—that there are very few of us who can 'look natural' on a word of command without a little practice beforehand. Most of us are unable even to smile naturally when asked to, while we have all experienced the problem of arranging our hands and feet when seated before the camera in the studio of the professional photographer.

Even the best mannered people are apt to be extremely rude when anyone wishes to take their photograph. It is nothing more or less than bad manners to giggle, stand awkwardly or look glum, or in any other way show an absence of what Americans call 'poise,' as soon as a friend produces a camera. Your friend wishes to take your photograph—a wish which in itself is something of a compliment—and yet you return the compliment by making it as difficult as possible for him to take a photograph with which you yourself will be pleased!

The man or woman who knows how to pose well for a photograph has, in these days, a great social gift. There are more than five million amateur photographers in this country—a fact which puts amateur photography near the top of the list of the nation's hobbies in order of popularity. Surely an ability which will help so many of one's friends to enjoy themselves must also be placed near the top of a list grading social assets according to their value to society?

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Bournville *Plain flavour* Chocolate

Made at Bournville, the factory in a garden

Australians at Home

by MICHAEL TERRY

In the self-governing States of the British Empire we, the people, are not sovereign. For the changing purposes of the day we elect our rulers, we criticize them freely, and we expect to be able to turn them out if they bungle their job. But to fulfil those constant functions of the State about which there is no dispute, to embody those permanent social values which are above politics, and to guard those traditions, the bequests of the past to the future, which are more deeply rooted than the whims of a passing generation—for these purposes we recognize a Sovereign other than ourselves. It will shortly be the duty and privilege of H.R.H. the Duke of Kent, as the King's representative, to perform that high office for the Australian people, of whom the following article attempts to give a composite picture

WITHOUT doubt Australia is worse served by publicity than any other part of the British Empire. Its aspirations and its people are incorrectly appreciated; news of it, except in relation to some unfortunate occurrence, rarely appears in English newspapers. A kind of negative attitude towards the land of the kangaroo is firmly rooted in the minds of people this side of the world, a condition which of course could and should be corrected by Australia, if only to encourage Empire migration, which promotes Empire safety.

Droughts, labour troubles, bush fires, harsh voices, miserable aboriginals, defeatist animals, scenery which is curious but rarely attractive, build up a picture which even today is commonly accepted with little, if any, hesitation.

Let me therefore describe to you the circumstances of our cousins 'down under': what they are like as individuals, how they live, what amuses them. I will try to paint a novel and intimate picture of Australia for you, and show why, having lived there twenty years, I have become so much attached to my new home.

Probably you have thought of this Dominion chiefly in terms of sheep, gold, cattle, gum trees, kangaroos and those romantic days when bushrangers were part heroes, part villains. Let me do a little de-bunking.

Those who live on the frontiers of civilization are still as romantic in occupation, dress and environment as ever. They kept open house for the stranger until ignorant motorists abused the privilege. But rather than be guilty of closing a door on a traveller, they do not tell him to keep on travelling; like the shy blacks and the nervous cattle who depart at the approach of a crowd, they move deeper into the bush.

Nevertheless, do not fall into the usual error of assuming that this section of the community typifies the whole. Far from it.

Half the people live in the five great cities, a large proportion of the rural population is found in the country towns, thousands work on sheep stations, in lumber camps, orchards, and down the mines. Only a very small proportion of the rural population belongs truly to the frontiers. One may say that in a population of not quite seven millions, perhaps only one person in one hundred steps out of the picture in the form expected by the stranger to the Dominion.

What of the other ninety-nine, whose lives are not spectacular, who have never seen a kangaroo outside a Zoo, who would be scared by a wild black fellow, who are not quite sure if an emu can fly or at which side of a horse one stands to mount?

When I first landed in Australia I had to correct many false preconceptions. I had seen the 'Digger' in Europe in the thick of battle, marching with bayonet flashing; I had seen him flouting law and order. I was rather fearful of the fellow: a wild, strong, intolerant person to whom army discipline and convention were anathema.

A.N.T.A.

That romantic figure, the stockman, is still the keystone of Australia's economic structure. He is one of the hardest workers on every sheep or cattle station, and must often remain on horseback from daylight to dark for weeks on end

It was a relief to find that the same person back in mufti became a law-abiding fellow, desiring to be left alone to work out his life, until lately little interested in world affairs, tolerant about politics and essentially of a kindly disposition. The pleasant conditions of life in this new continent, the sun, the clear skies have, I soon found, combined to develop an easy-going attitude, without much concern for the future or much respect for the past.

There is little distinctive about the city person. One has to get amongst the country people to find the real Australian, and the further one moves from trams and streets the nearer one approaches the element which is the highlight of, but does not typify, the nation.

Most of my time out there I lived amongst the people of the remote bush, some of whom do represent the rare 'wild-west' element. On one occasion a camp-mate of mine, coming back to his senses after a 'bender', disputed the date with a storekeeper. Without moving from the counter, he pulled out his revolver and shot the three offending dates out of the calendar on the wall. Then he 'shouted for' (treated) his surprised mates and dismissed the incident.

But those who occupy themselves far from civilization add little to national wealth compared with the thousands who raise the wool, wheat, beef and gold; the primary producers on whose backs the top-heavy growth of the cities, in fact the whole development of the Commonwealth, is carried. Without hundreds of bales of wool and thousands of bushels of wheat and many carcases of cattle and sheep sold on the world's markets each year, Australia would quickly fade out of the picture.

The farmers fall approximately into three categories: the 'cockey' or smallholder who may have only 100 acres and two sheep to the acre; the 'selector' who may own several thousand acres and the 'squatter' whose station can cover a million acres and carry perhaps one sheep to 20 acres. The first seldom employs labour, being as a rule a hard-working father who, with his sons, fights a difficult battle against inadequate finances and variable seasons. I have heard it said that in all the Australian system the conditions among this group are nearer serfdom than any others. I don't like the word, but if it conveys the idea of dawn-to-dusk toil with little chance of leisure in old age, then it serves a purpose.

The second man, the selector, is a more prosperous person, often one who has obtained a portion of a station which has been 'resumed' under the policy of splitting up the huge holdings. The Australian dislike of anything resembling a trust or a great organization is expressed by the Governments who, when a lease draws to an end, divide up properties so that smaller men can obtain land otherwise within the grip of rich persons. But of course the selector is also often the first to occupy his land; he is, indeed, a semi-capitalist whose resources enable him to employ a number of men, to buy several thousand sheep or to put a great deal of, perhaps all, his selection under wheat. He is usually a 'mixed farmer', deriving his return from stock and crops.

The squatter is hardly ever interested in crops. Situated further from the cities, he owns wide pastures on which many men are needed to tend the flock. He is under contract to a shearing company who may bring to his woolshed 40 men once a year. He is the grand landowner but his purse is no less affected than that of the poorest cockey if rain should be scarce or a pest like the grasshopper should attack the fodder.

The whole range of Australian landholding is covered by these three groups. There are similar but less distinct grades amongst those whose interest is centred in the second major primary product—wheat. A different sort of person follows this game. He is much more machine-minded than

To win the Grand Champion ribbon for merinos at the Sydney Show is a high honour indeed, since Australia has 114,000,000 sheep which provide one third of the world's wool supply

the pastoralist, using tractors, harvesters, reapers and binders as a matter of course: whereas the sheep man encounters machines only once a year during shearing, when oiling a windmill or trying to fix a broken-down car. The wheat farmer has a more scientific outlook. Soil study, fertilizing, crop rotation, 'rust' in wheat—all these are matters in which he must have the help of scientists, to whom he refers more and more now that the Commonwealth Scientific and Industrial Research Council are cultivating up-to-date practices. He is co-operatively minded and meets his fellows regularly at a room in the local town so that each may discuss his problems and his methods of dealing with them.

Now let us look at other producers. It may surprise you that settlements exist in the Queensland sugar growing areas where English is not generally used, where small news sheets are printed in Italian and where (although the Italian has proved himself a good and law-abiding worker) occasional feuds break out. The Sugar Inquiry of 1930 found that this foreign penetration into the industry was 10 per cent of farmers and hands. To-day it is a little more. But the Australian housewife, even if she realizes the wisdom of keeping out non-European labour, is a little dubious at paying 4d. a lb. for sugar to subsidize the industry.

In the coastal forests of northern New South Wales and Queensland gum trees grow to huge proportions—as they do also in the karri forests of Western Australia—and it is on the eastern seaboard that we still find the 'bullocky' and his team. The motor truck has made no great inroads into his province as unmade roads, bog, flood, tempest, are so much less of a handicap to ancient forms of transport, which, if very slow, are much more sure. It is a grand sight to see many yoke of oxen

straining at huge logs chained on a wagon or to see them hauling others through the undergrowth to the roadside for loading.

In this review of bush life, we must not forget the miner, of whom there are two sorts: the worker in the great mines with regular hours, carefully scaled rates of pay, bound by all sorts of do's and dont's, and the scout, the prospector, who, with canvas water-bag and pick, wanders over range and plain. A self-reliant fellow as hard as you can make them, an enduring optimist and extraordinarily casual about his own comfort or the sort of food he eats.

That is largely because he feels that each dawn will be the last without fortune. Today he may be living on kangaroo and 'damper' (baking powder bread), but tomorrow he may split open a rock which will build him a mansion in one of the great cities; like Dead Sweet Joe who in the last six years, by an extraordinary sequence of lucky finds, enriched himself at the rate of about £8000 each year.

The more spectacular lives of those who follow Australia's national occupations overshadow the parts played by those who handle produce. All exports must, however, be handled by middlemen in business, railways in transport, and eventually by the 'lumper' who hoists the final packages into the holds of vessels which will cross the world.

Of those who act between grower and market none has impressed me as much as the man on the wharf whom we call sometimes 'lumper', sometimes 'wharfie'. His prodigious strength, his disrespect for

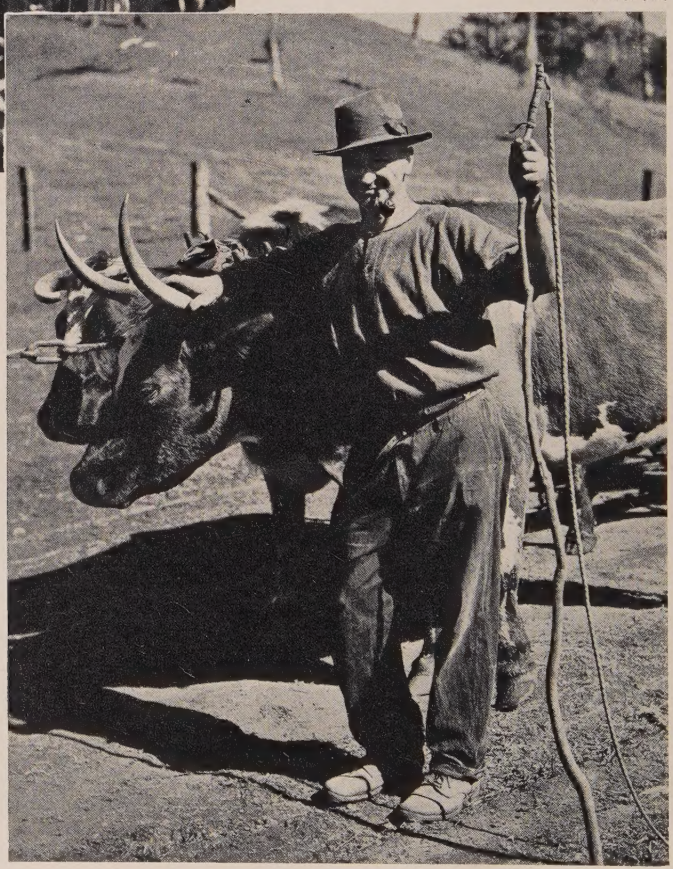
A.N.T.A.

Such shows are the place to study the farmers who carry the rest of Australia on their sturdy backs

A.N.T.A.

The Australian housewife pays a high price for her sugar in order that Queensland's cane-growers may meet outside competition, and that all non-European labour may be kept out

A.N.T.A.



On the eastern seaboard the transport of timber still depends largely on the 'bullocky' and his team, for the ox can stand up to local conditions that would disable the motor truck

A.N.T.A.

The production of wheat (now, after wool, Australia's most important export) occupies many descendants of those who emigrated during the 'gold-rushes' of the last century. (Above) '*Lumping' wheat for export at Williamstown, Victoria.* (Below) *In a gold mine at Bendigo*

Kosmos

Fallon

(Above) *A typical up-country mother and son come to town for the horse racing. This is now 'the most lively link between town and country'. Every small town and group of stations has at least a yearly meeting*

Among the more wealthy station men polo is another popular sport, and Polo Week in Sydney is a great event. (Left) *The head groom of Mr Gordon Munro, a prominent New South Wales player, in the stables*

authority, his high wages, his capacity for beer are evident as soon as you get to know him. He and the coal-miner on the fields near Newcastle (N.S.W.) are frequently storm centres in labour disputes. Since Japan attacked China they have been 'news' because of their refusal to load scrap-iron, wheat, or wool for Japan. Rarely does a year go by without ship-owners or the coal industry having to smooth out some dispute and it is this sort of news which is flashed across the oceans while all the time men on the land quietly get on with their tasks, piling up Australia's resources, adding to her income.

The most lively link between town and country has been forged by the horse. To most Australians the value of a horse is not that it can work, but that it can race and thus empty or fill their pocket. Nobody loves a gamble, even a modest 'bob on the tote', more than the man and woman down under. Racing has indeed become a passion and a whole section of the community, of a type peculiar to itself, handles what has become an industry.

From Halls Creek, in Kimberley, where the judge may squat on an ant-hill to watch the finish, right through all grades of racing to the Australian Ascot (the Melbourne Cup) there is so much enthusiasm that to find someone who does not care to follow the sport is to find almost a freak. Every country town, every group of stations, has at least a yearly meeting. After shearing is over the first thought of the 'shed' is to get to a race-meeting so that they can gamble with their hard-earned cheques. And on the first Tuesday in November, which decides the date of the Cup, Melbournites put on morning dress and the latest frocks to support the Viceregal party which attends the great national occasion.

Notwithstanding all Australia's non-urban activity several million Australians live a life as fully urbanized as, say, the population of Wimbledon. In fact the drift to the cities is becoming a national problem. For the cities are now very pleasant places, with cinemas, air-conditioned hotels, night life, beaches and all the amenities of luxury flats and home life. Many urbanites see little of, and care less about, their brethren far inland. True, they often motor out of town for a picnic, or weekend at a sun-drenched beach; they 'hike' far from houses or go ski-ing in the Australian Alps. But they are not bush-minded. Considering themselves a cut above the crude, less-favoured country people, they tire of country novelties far from the pavements as quickly as the tripper in old England.

And yet Australian urban conditions present wide differences, climatic especially, in comparison with those of Wimbledon. The standard of living, that child which the new Dominion cherishes so tenderly, is undoubtedly higher than in England. Pure-food laws covering such dissimilar things as jam and patent medicines, sauces and dairy products, ensure that however simple the meal it shall be nourishing and healthy. Cheap imitations of the real thing do not attract the housewife—because the grocer does not sell them.

Luxuries, peculiar to the expensive shops of Britain, are mere commonplaces down under. For 4d. a lb. in Perth I have bought grapes, peaches or nectarines. Hundreds of gardens have their own grape vines and fig trees and many in the northern part of the continent grow their own paw-paws, mangoes, bananas and custard apples. If you are asked to pay more than sixpence for a pineapple in Sydney it is probable that you will decide not to 'waste the money'. The larger fruits are seldom sold by the pound but at so much a dozen. Many a time when I used to cross Sydney Harbour to my rooms at Cremorne I have bought several huge peaches at Circular Quay and eaten them at the front of the ferry, a little surreptitiously perhaps, and hoping I would not see a friend, but enjoying them all the more for that.

The American corn-on-the-cob, fresh, of course, not tinned, is quickly gaining popularity, and as for oysters—why, the coastal dweller who does not eat them several times a week is simply *blasé*. I personally find them more succulent than the Whitstable native; usually they are larger but the cost is only 1s. 6d. a dozen!

Besides the vegetables to which one is accustomed in England, most greengrocers stock sweet potatoes, egg fruit, choko. Mangoes, paw-paws, custard apples are delicious fruits. And I have never seen meat so attractively displayed as in the shops at King's Cross, the centre of flat-life in Sydney. Australians are great meat eaters, to excess in the northern parts of the continent where a more suitable diet could be found in the heat.

The Australian city-dweller's circumstances are in some respects similar to those in every 'new' country. There is plenty of space, and cities spread widely so that nearly every family may have its own single-storeyed bungalow, and garden. Double-storeyed houses are rare and for the most part belong to an older period of building prior to the development of the bungalow which is so suited to the climate. Stairs and cellars therefore do not harass the servant as they do in the Old World.

The urbanite loves his garden. The short days of so much of the English year being unknown, many an office worker tends his flowers or his lawn after he gets home, and a love of flowers is traditional. Visitors remark upon the great number of flower shops, and the cheapness and beauty of the selection offered to those who, living in the busier parts of the cities, are unable to grow their own.

A.N.T.A.

Sydney claims one of the most beautiful harbours in the world, with a foreshore 183 miles long. The famous bridge which links the city with the north shore was completed in 1932

A.N.T.A.

King's Cross, one of the city's most densely populated districts, is the centre of Sydney flat-life. Many of the buildings overlook the harbour, and flats cost from 30s. to £30 a week

A.N.T.A.

This type of dwelling is uncommon in Australia: the citizens' homes, spread out in vast suburbs, are mostly one-storeyed bungalows, each in its own private garden. Ample scope is thus given for the national love of flowers

Fallon

All Australia's big cities are close to the sea, and their young manhood takes full advantage of ever-expanding facilities for surfing, sailing and camping—with evident effects on its physique

But as might be expected everything is not roses in the city. Strict conditions of pay and hours in domestic service are enforced by law. Thus the evening meal is seldom after 7 o'clock, and more often at 6.30, except in the houses of the rich who, perhaps by additional payment, need not finish a dinner party till, say, 10 P.M. Wages are higher too, so that a house with more than one servant is uncommon. The 'slavey', that poor drudge without a hope of eventual independence, is not a feature of this go-ahead land where women, no less than men, demand and usually gain a share of the sun—in every sense.

The climate affords the fullest incentive to keep out of doors. Picture the lucky Sydneysiders who can slip down to a beach for a plunge into the surf after the office closes. It is only forty minutes to Bondi by tram or by ferry down the harbour to Manly, and less to the near-in suburbs where shark-netted bathing-pools line the harbour. Picture, too, the extra lucky ones who live by the water and can have a dip before going to work also. And not in Sydney alone. The shores of Port Phillip are lined with the suburbs of Melbourne; Perth stretches along the banks of the glorious Swan River, a large proportion of Adelaide lives at Glenelg, Largs Bay and Spencer's Gulf.

The preservation of considerable recreation areas has been carefully maintained by town planners. Such places are thronged with cricketers in summer, footballers in winter, and baseballers too. Tennis is exceedingly popular. The person who cannot stand before a net or lie on a beach on Saturday afternoon and Sunday is unfortunate. And at Christmas-time the cities are forsaken by thousands who go away to surf, ride, camp in the

forests or stay with friends in the country. Anywhere, so long as they can be in the open air.

The god of work, in the shrine of ambition, is worshipped by these virile people less devotedly than by, say, the Canadians. I have heard a man declare that he would never invest his money in a country where the people did not have to wear fur coats. That may be all right when the national quest is for dollars. But the Australian favours a different standard, combining a little of the languor of the Latin, some of the acquisitiveness of the American, with his own ideas of an enjoyable way of life.

I have been much interested by the Canadian view of Australians. Anyone who stays two years in the same job, say some Canadians, is not worth paying—not enough ambition, no enterprise, insufficient spirit. Bred on the 'hire-and-fire' system, the steadiness of the Australian savours to them of the Old Country. And yet an Englishman is often troubled by the readiness to quit which he finds in his cousin down under. It's just a matter of relativity.

Americans, too, have been criticizing Australians in the Press, saying that no one 'plays hell', or 'kicks about rackets', or beats the publicity drum; in short, favours the superlatives beloved of Uncle Sam.

To my mind, Canadian and American criticisms on the one hand and the Englishman's on the other, explain Australia. Without any suggestion that the Australian social system is not sound, or that the inhabitant of the Commonwealth is in any way slack, it is clear that a desirable compromise is established between the extremes of the Old World and part of the New. Australians are moderately keen workers, quite ambitious, decently provided for and as a result able to take part in many sports.

The result? As fine assault troops as any which came to the aid of Great Britain and a well-established international reputation in tennis, cricket, golf, swimming. Nor has muscular development been at the expense of the mind. Great men in medicine, the arts, in Antarctic exploration, before the footlights and behind the office desk, in the cockpit of the aeroplane and in public service, are already world-famous. Sir Hugh Devine lectures on surgery in the Melbourne University; Madame Melba charmed the world with song; Sir Douglas Mawson has won many laurels in the Antarctic; Bobby Helpman is now a European premier dancer; Low, an unrivalled cartoonist of Fleet Street; S. M. Bruce has played no small part in the affairs of the League of Nations; Sir Charles Kingsford Smith was a crack aviator. To crown all, of the lands within the British Empire none more

Kosmos

Ten years ago Lord Somers (seen on the left), Governor of Victoria, founded at Balnarring an annual camp which is open to all types of boys

The Australian girl works hard. She usually does her own housework, and as a factory worker adds materially to the national income. Australia sends nearly 11,000,000 *eggs to Britain every year*

readily declared itself behind Great Britain in the crisis of last September.

I remember an ex-Indian Army officer who once drove me in a taxi to the Australia Hotel in Melbourne. We began to talk and, as the crowd passed, he quickly convinced me that it may be Sydney for figures but it's Melbourne for ankles! And then we agreed to allow the Australian girl a hundred marks for looks, figure and skill in making the best of herself.

The girl who does not work is much more rare in Australia than at home. Preoccupied with earning a living in a factory, a store, a beauty parlour, she throws herself into the stream of life more actively than her English cousin. Working hard, she also plays hard, having every incentive to make the most of 'out of doors' as well as of city gaiety after dark.

Unwilling that only male life-savers should be applauded during Surf Club Parades, in spectacular rescues from crashing white breakers, she has started clubs for women only. There is great competition to pass the rigorous swimming and rescue tests which permit membership: there is also grand rivalry between the stalwart Gods and competitive Goddesses. The sight of teams marching side by side during a beach carnival makes it easy to believe that Olympus itself has been temporarily vacated.

I have often thought that a beach girl would rather deny herself another evening dress than the latest bathing-suit. Surf and sun feature prominently in her scheme, and she knows the thrill of shooting the breakers, the pleasure of swimming quietly, the grandeur of lazing in the sun as well as enjoying the opportunity of displaying herself for the benefit of the crowd in general, and maybe for some lucky fellow in particular. If ever a people worshipped bronzed skin it is those who live in Australia.

At the start of the surfing season, say November, one hears perpetually about

From October to April, the duration of the bathing season, the beaches are thronged, and the girl who attracts attention is the one who is not *sunburnt! For such girls—*

A.N.T.A.

—the addition of finery for an occasion like the Henley-on-Yarra Regatta seems superfluous

Cazneaux

The Australian landscape, with the strong lines of its gum trees under a brilliant sun—

Fallon

—as well as the rich variety of its colour, has stimulated vivid and original artistic expression

some new way of 'getting a colour' or the envious remarks of those 'breaking in', when some beautifully bronzed thing, who has probably been bathing all winter, goes by.

The climate in most places being suitable for more delicate fabrics than in England—mark well that Australia is far from uniform in the duration or the strength of its sunshine, rain, wind and cloud—girls are able to come out in filmy lace and crêpe-de-chine and those pretty 'sillies' which appear so alluring. Unbowed by weight of fabric, she holds herself better than the English girl and certainly walks more attractively.

The increasing keenness for 'hiking' takes the Australian girl out of town at week-ends. She throngs the banks of the river in Melbourne during Henley-on-Yarra, when Geelong, Scotch, Xavier, Grammar and Wesley row for head of the river. The meetings of the cycling fraternity, the race-goers, the yachters, the motor-racers, the horse-riders and all other sporting groups have their fit and proper proportion of the fair sex.

At the same time, although I have been directing your attention particularly to the striking girls, the leaders, do not forget that there are thousands who live quiet, unobtrusive lives: working hard all day and returning home to a house in the suburbs, seldom going to a dance, rarely visiting a beach, their week's highlight the 'flicks' on Saturday night.

For a country only 150 years old, where even today some areas are still unexplored,

Australia is showing much more interest in the arts than one might expect. It seems almost an anachronism that subjugators of a new land, even though its cities have grown with great rapidity, should supply a quantity of high grade material to the mills of European culture which, grinding mercilessly, turn out so few successes. Clara Butt, Merle Oberon, Madge Elliott, Judy Kelly, the actresses, Longstaff, Norman Lindsay, the artists, are names which spring quickly to mind.

Such high-class periodicals as *The Home* and *Art in Australia* (founded and till recently edited by Sidney Ure Smith, the great authority on Australian art), keep one abreast through their illustrations, of architectural developments showing the perceptible trend towards an Italo-Australian character in home structure. They also emphasize the modern tendency in industrial and office building, proving often that the U.S.A. in this respect has more influence than Britain.

Wealth is being widely applied to stimulate creative genius. Without patrons much artistic progress must have been neglected and then we might not have seen the beauty of the gum tree beneath the brush of Hans Heysen, the landscapes of Lionel Lindsay and Norman Lloyd, faces and figures by George Lambert and the etchings of Sidney Ure Smith. We might have missed the poems of Leon Gellert and Bernard O'Dowd; the novels of Henry Handel Richardson and Helen Simpson; the black-and-white drawings of Adrian Feint; the cover designs of Hera Roberts and last but not least, for those in search of the spirit of the Australian bush, the poems and works of Banjo Paterson and C. J. Dennis.

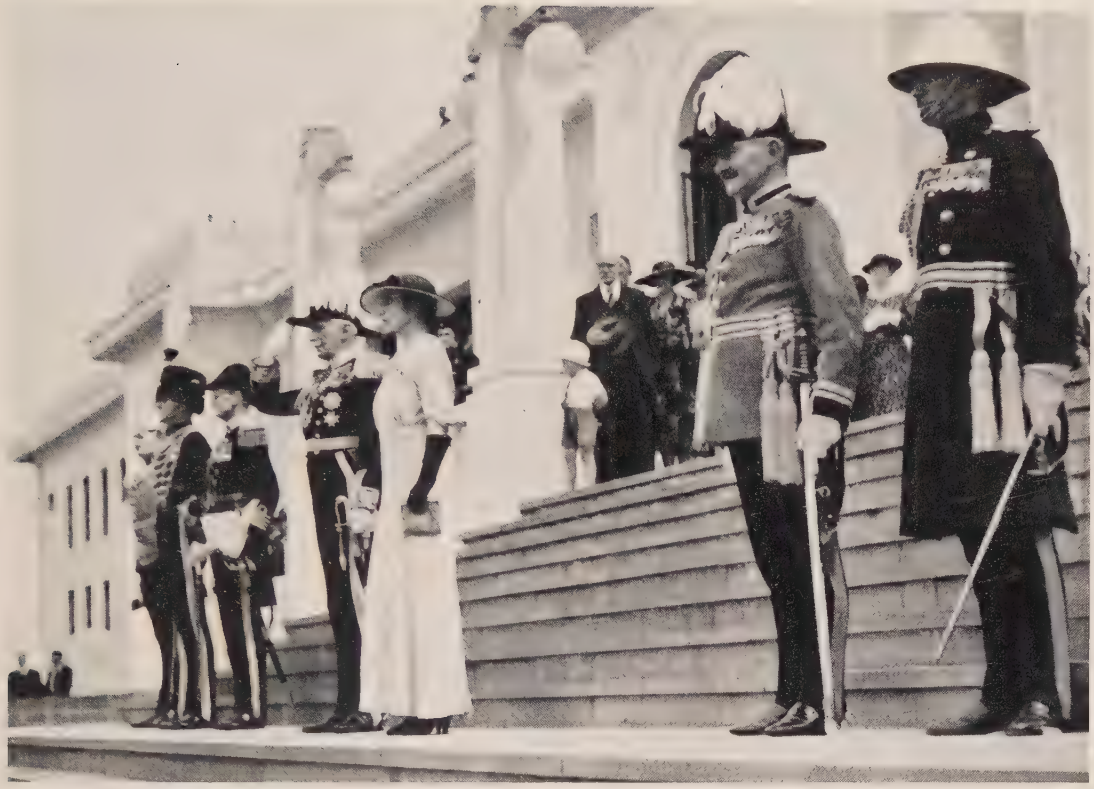
Bright colours are the dominant factor of the landscape, and have prompted Australians to develop their artistic qualities. No water is so blue as Sydney Harbour, no foliage so green as the gums of Gippsland, no yellow so vivid as the Christmas bush of Western Australia, nor any red as deep as the flower of the waratah.

The whiteness of the beaches, the grandeur of the Australian Alps—each has stimulated artistic expression. So have the gentle notes of the butcher bird, the mellow tones of the bell bird, the crack of the whip bird, even the ridiculous cackle of the kookaburra: a natural choir in the clear air of the quiet forest which has influenced the outpouring of human song.

Is this artistic development but a part of the readjustment of the newcomers, the English? I claim that we are already reacting to the new climate and circumstances. The skin of the Australian is becoming darker than the pink-and-white softness of the newcomer straight from home. The air and the sun at first develop energy and vitality; but after two generations, particularly in the northern and tropical parts, one finds also a little languor: a greater desire for beach and race-course, less enthusiasm for desk and bench, a greater readiness to accept things as they are, and, as in the Northern Territory, 'the land of plenty of time and wait awhile', tolerance of procrastination.

The predominance of brunettes, the early maturity and the loveliness of the girls coupled with artistic leanings suggest to me that Australians of the future may be less like English people than they are today. Adjusting themselves to a warmer climate and an outdoor life they may later change to a type nearer the Southern European.

To this land of contradictions the Duke and Duchess of Kent are due to go shortly, and the Duke has already said that he means to travel about the Commonwealth. A Viceregal representative whose horizons are bounded by Government House, Parliament, parades, the Melbourne Cup and official balls has little opportunity really to sense the ambitions and the sentiments of the millions. That comes with



Fallon

In October Lord and Lady Gowrie (here seen taking the salute on the steps of Parliament House, Canberra) will be replaced as Royal representatives by the Duke and Duchess of Kent

travel and an informal approach: by interrupting the gold hunter opening up a new reef, by halting a camel driver and his 'string' sauntering over a featureless plain, by an unheralded visit to a beach, an unexpected arrival at a factory.

There are so many occasions of which royalty avails itself in Britain to gain contact directly with ordinary people, but of which some overseas Governors make insufficient use. Herein one may be sure 'The Kents' will not fail, will not hesitate temporarily to Australianize their outlook, so that eventually their knowledge and counsel will assist imperial development. And, so far as it is compatible with Vice-regal formality, they cannot fail to enjoy sharing the pleasures of beach, mountain and plain. To hunt kangaroos with stockmen of Riverina, to cast a fly for trout in the streams of Gippsland, to come tearing down the slopes of Mount Kosciusko on skis, will be no less grand than yachting at any of the capital cities, following the drag, or, more serious, delving into Australia's secret wealth in the mines of Kalgoorlie's Golden Mile, watching the Golden Fleece being stripped from sheep at, sometimes, 300 per man per day, or seeing the great karri giants felled in the forests of south-western Australia.

For Australia, intensely loyal to the Crown, and more imperially-minded in relation to defence and trade than any other part of the Empire, will expect a great deal of the brother and sister-in-law of our King. There will be a keen desire amongst the millions to gain full or, at least, some personal contact with the successors to Lord and Lady Gowrie.

German merchants, invited by the Slav Dukes of Pomerania, settled at Danzig in the 12th century. In the 13th the Teutonic Knights crusaded against the pagan Prussians

Turning from crusade to conquest, the Teutonic Knights established dominion during the 14th century over the Baltic coast beyond the eastern frontier of the Holy Roman Empire

Danzig and a group of Prussian cities, with Polish aid, revolted against the Teutonic Knights in the 15th century and Danzig became a Free City under Polish suzerainty in 1457

This situation lasted, with minor modifications, until 1772, when, at the first partition of Poland, Frederick the Great of Prussia annexed a wide strip behind Danzig

Stanford, London.

The second and third partitions of Poland in 1793 and 1795 brought both Danzig and Warsaw under the rule of Prussia, the rest of Poland being annexed by Russia and Austria

After Napoleon had re-established part of Poland as the Duchy of Warsaw, it was again divided by the Congress of Vienna in 1814 between Prussia, Russia and Austria

Poland as restored in 1919 with much the same western frontier as before 1772. Danzig became once more a Free City, internally autonomous but within the Polish customs area

A map showing the size of England and Wales as compared with that of Western Poland. More than three-quarters of Poland's foreign trade is carried by sea

Stanford, London.

Free China's New Gateway

Notes and Photographs by Gerald L. G. Samson

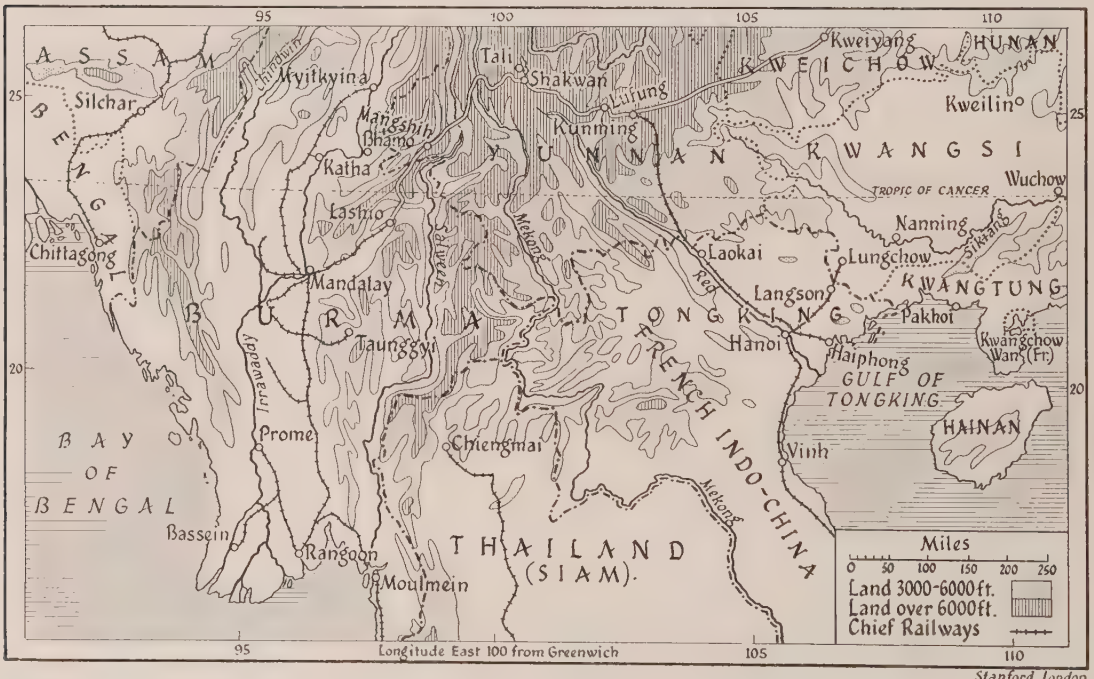
China's heroic resistance to Japanese aggression has received general recognition, but an equally amazing achievement—the creation behind the war front of what amounts to a New China pulsating with activity—is relatively unappreciated.

This territory now organized in active resistance to Japan has a population of over 150 millions. It comprises the north- and south-western provinces, the richest in the Republic, and covers an area as large as Western Europe.

Here, new economic, industrial, hygienic and educational centres have sprung into being. One of the most important of these is the provincial capital of the south-western province of Yunnan, which is rich in mineral resources such as tin, copper, lead, antimony and wolfram, the output from the mines being exported in exchange for war materials. Kunming, formerly called Yunnanfu, is connected by a fine highway, via Kweiyang, with Chungking, the war-time capital, and other strategic points. Its population has doubled since the outbreak of war. Wide streets paved with slabs of stone and concrete office buildings have been constructed in many sections, and on the outskirts a number of large factories, many of which have been transferred from 'threatened areas', are making their appearance: several of them are already in production.

Kunming has additionally become, in the cultural sense, a second Peiping. Ten of China's leading colleges and universities with a combined roll of 7000 students have migrated to this sunny plateau. Among them are three famous northern universities, Peita, Tsinghua and Nankai, which have formed themselves into the South-West Union University.

Kunming is also the international gateway in and out of Free China. It is the China terminus of the French-owned Indo-China railway, the recently completed Yunnan–Burma highway and the Hanoi–Kunming air-line. Very soon it will also be the China terminus of another international air route, one from London via Rangoon. And it is only a matter of time before the construction now in progress will place Kunming in direct railway communication with Burma.



(Above) *The campus of the South-West Union University which was previously the local Agricultural College.* (Right) *General Lung Yun, Governor of Yunnan province.* (Below) *A few of the 2600 students who walked from Peiping and Tientsin to continue their studies in Kunming*

Inside the Yunnan Cotton Spinning and Weaving Company's mill whose 5000 spindles are to be increased to 30,000 by the end of the year. Other industrial enterprises in Kunming include a flour mill, a copper refinery and factories for chemicals, hardware and aircraft

Construction work on the Yunnan–Burma railway, which is estimated to cost $100,000,000 (national currency) and take two years and a half to build, was begun only in December; now, however, nearly 120,000 men and women are busily engaged on this huge undertaking

Projects such as these are financed by the Central Government which, besides its revenues from taxation and domestic loans, receives assistance from the British Boxer Indemnity Fund and the commercial loans recently extended to it by the British and American Governments

alt is an important source of evenue. Salt carriers resting at ufeng, a small village on the road eading from Yunnan into Burma, oughly 70 miles west of Kunming. The 'chops' or seals of the Salt Gabelle (tax bureau) can be clearly een stamped on each lump of salt

A street scene in Shakwan, 260 miles west of Kunming, the point from which the recently opened section of the Yunnan–Burma road begins. Shakwan is the commercial centre of Western Yunnan and is now experiencing a rapid increase in population and general activity

ively bidding at the open-air cloth arket in Shakwan. Commerce being stimulated by the influx refugees from other parts of hina; but in this region only the d silver dollar or the new one-ollar notes are accepted, for paper rrency is a novelty to the people

Ten miles north of Shakwan lies Tali on the shore of the lovely Tali lake which is 6000 feet above sea-level. Tali has recently become one of the new educational centres, as well as a convenient overnight stop for travellers over the Burma road. (Above) *The cemetery, with its snow-capped mountain background, extends for several miles.* (Below) *The gateway to Tali*

(Above) *First of the big rivers encountered is the Mekong, and the new steel-cable suspension bridge spanning it is capable of carrying a strain of seven and a half tons.* (Below) *Clearing away a landslide of solid rock some three miles from the steel suspension bridge across the emerald-green Salween, the second of the big rivers over which the highway passes*

These Shan, or as the Chinese call them, 'Pai-Yi' women are carrying vegetables to market in Mangshih

Mangshih, a little village 80 miles from the Burma frontier, is where China and Burma really meet—the high black turbans and gaily coloured loongyis or skirts of the Shan tribesmen blend romantically with the background of Burmese pagodas and the saffron robes of the Buddhist priests.

Before crossing the border the next day, one cannot help looking back and marvelling at the initiative, iron nerve and determination displayed by the 200 Chinese engineers and the 160,000 workmen who conquered the intricate and perilous topographical difficulties in their path.

Imagine cutting a road 350 miles long (the Kunming–Shakwan section was originally built three years ago) through primitive country, over high mountain ranges 7000–8500 feet above sea-level, and across two mighty rivers, in less than a year with unskilled labour and no modern equipment!

The Burma section of 116 miles to Lashio, the north-west terminus of the railway to the port of Rangoon, is not so crude in construction. This is because it passes over much easier terrain, and having better communications and more up-to-date equipment on this side, road-work was considerably simplified.

Several small convoys of military supplies have already come safely over the highway from Burma. But the heavy rains which began at the end of May, and will continue until the end of October, are bound to disrupt regular transport for the time being. However, when the necessary improvements have been made, the Yunnan–Burma road will be in first-class condition and play an increasingly important part in enabling China to continue long-term resistance against the invader. Its potential significance is growing daily as the Japanese Army and Navy tighten their blockade of the China coast.

France's Travelling Players

by ERNESTINE EVANS

It may be stretching geography rather far to regard the Comédiens Routiers *as falling within its scope; but they carry with them so much of the essence of France that anyone who is lucky enough to see them if, as is hoped, they visit England, will have made a journey in spirit more enlightening than many which he might make in the flesh*

If strength in the arts is a measure of national greatness, France must always be reckoned a first-class power. On the stage, in particular, her strength is being shown at present not only in the classic tradition of the great theatre and in the ever-sparkling fountain of Parisian comedy, but in something new, a mobile unit of enchantment and enlightenment. Her Travelling Players, or *Comédiens Routiers* as they are called in France, are one of the most unusual troupes of strolling players in the world, and in France they have achieved national fame as interpreters of folk-tales, Molière, Shakespeare, and creators of new animal characters that promise to rival Mickey Mouse and Ferdinand the Bull in the public's fancy.

The troupe was born very humbly eight years ago. Léon Chancerel, director of the theatre, was a member of Jacques Copeau's Vieux Colombier company. He was an actor, a director and a student of the drama through all its religious and secular history. He believes in the theatre not as an institution to distract the bored and rich, but as having functions as great or greater than church, press or school; for revealing the people to themselves, reflecting spiritual ideas and leaders, and describing the unending conflict of life, in such a way that men may choose their sides and extract meaning from apparent chaos.

When Léon Chancerel, therefore, eight years ago went to work with some Boy Scouts, to help them make an amateur theatre for other scouts and for their parents, something serious was bound to come out of it. He found that boy talent lies in more directions than skill with balls and bats; that teamwork in sports might easily be turned into the needed discipline for a coherent ensemble of actors.

The players began thus as a student company for Scout audiences; they form today a devoted band of young professional actors, who have chosen to serve not the law, the navy, the church or business, but are consecrated to the theatre.

The troupe work and live communally, eat their meals together and share their poverty, for they rely on the generosity of their audiences for their living. They perform in anonymity with the exception of one name—that of their head, Léon Chancerel. The troupe consists of only twelve players, young men and young girls. Their origin is most diverse: one man was originally a photographer, another a swimming teacher. A third was a barrister, practising very successfully until the idea of the Travelling Players captured his imagination and he gave up his practice to join with them. Léon Chancerel himself formerly studied medicine.

They play for the whole of France and not for Paris alone, though they do play in Paris often, in all the arrondissements and to all sorts of audiences. They played Molière on the Pont Alexandre III at the Paris Exhibition; they play in museums, in music halls, at the ABC, in the trade-union halls, and give programmes that last from twenty minutes to three hours.

They can set up their theatre anywhere that an audience is to be found, so few are the properties, so simple and direct the technique of the actors. They have played in peasant districts in barns and tents and open fields; they play in barracks and taverns, in school-houses and factories,

All photographs by Schall

The Travelling Players work and live communally; they eat their meals together, and all share alike in the poverty or affluence of the troupe. Mussels are a cheap and favourite dish

rarely on a real stage. The mere physical journeying and the adaptation is hard work. They are not a proletarian theatre but they are a people's theatre playing for all ages and bringing dramatic fruits from all times and many places, but especially from traditional France.

They make their own costumes and stage properties; what is more, they make their own masks of papier-maché . . . all the classic characters; and new ones for the 'Theatre of Uncle Sebastian'. They have a repertory of plays based on stories for children, the characters out of 'Uncle Sebastian' and 'Babar', and as in the old Italian *Commedia dell' Arte*, actors, director and audience compose the play around Lududu the clown, Babar the elephant, Olibrius the centaur. All these are known to thousands, no, millions of children, who can get them in big and little volumes wherever books are sold. Even the chil-

Since they must cut down expenses to the minimum, the Players make their own costumes and masks: the latter enable rapid changes to be effected in a full programme without make-up

dren in the Spanish Refugee camps have come to know Babar, elephant and citizen of France.

For adults, the clever mixture of modern parallel with ancient tales and fables makes an immediate appeal. However, what makes the Travelling Players great is not their appeal to the young and old by popular devices, but the exceeding skill and understanding with which they carry out their plays, the amazingly perfect teamwork between the artists that gives you the impression of people working completely in harmony and enjoying every moment of their performance together.

The half-masks, made in the studios of the Comédiens Routiers, are worn in the burlesque productions and in some of the Molière comedies. This old theatrical device has been adopted by the Comédiens Routiers as a means not only of defining the characters, and as quick make-up, but

'*They are masters in the art of recitation, and no one who has heard their rendering of Villon's famous* Ballad of the Gallows *will ever forget either the players or the poem*'

even more as a means of forcing the conceptions and sentiments of the characters into expression through the entire body. It permits the actor to pass rapidly from one character to another, prevents grimacing, accents the comic element, tends away from naturalism. Women, except in the character parts, play unmasked.

The Comédiens Routiers are masters in the art of recitation, and no one who has heard their rendering of Villon's famous 'Ballad of the Gallows' will ever forget either the players or the poem. Every programme contains one or more choral recitations. Nearly always accompanied by pantomime or orchestrated rhythm, the words are sometimes flung from voice to voice, sometimes spoken in unison. And here the Comédiens Routiers live up to the great tradition of fine diction for which the theatre in France is celebrated, and which is one of the reasons the French language itself is recognised as a national heritage to be treasured by all. Yet the recitations of the Comédiens Routiers are not only celebrated for diction . . . no spoken poetry is to be marvelled at for chiselled words alone, but for the tempo,

Though their audience has long expanded beyond the circle of Boy Scouts among whom, eight years ago, the Players originated, the Scouts still lend a willing hand at their performances

Other amateur help is also locally recruited wherever their shows are given, notably in connection with the orchestra, which draws on enthusiastic if often somewhat mixed talent

The Players make a special appeal to young people, for in their repertory are plays with characters drawn from stories known to millions of children such as 'Uncle Sebastian' and 'Babar'

In the 'Uncle Sebastian' plays, as in the Italian Commedia dell' Arte, *there are certain fixed characters (among them Uncle Sebastian and his nephew Lududu) while others vary. The little elephant Babar is the central figure of one play, which concludes with a trial scene*

Babar and the

(Above) *Babar being dressed for the play.* (Right) *A wicked Animal Trainer has got Babar into his clutches and, when Uncle Sebastian and his friends effect a rescue, accuses them of theft. Lududu, one of the accused, is intimidated by the Gendarme*

Uncle Sebastian pleads his cause before the Judge, who brings the truth to light with the help of the children in the audience. One of the children is even asked to come onto the stage and enter the witness-box, where he takes the oath and tells what he has seen in the earlier part of the play

Judgement

The Animal Trainer is taking his false oath. Other characters are 'Rose des Bois', daughter of the centaur Olibrius; Babar's friend the Old Lady who took him to stay with Uncle Sebastian and play with Lududu; and Babar himself

A scene from a religious play in the repertory of the Comédiens Routiers *given in the Parisian working-class district of Belleville, where the famous travelling Choir of the Wooden Cross originated*

the tension, the whispered mystery of some lines, the violence or relaxation of others.

The Players, in a world of journalism and wisecracks, bring La Fontaine to life again, in little gems of foolery and wisdom, half as long and twice as pointed as the little plays the Bat Theatre used to give in Moscow, and as rattling as any variety stage in London. Folk-lore and the classics, the old artesian wells, are refreshingly produced by the Travelling Players; not as 'folk-lore and classics' but as just the 'best', old wine, and nothing too good for the common people, the whole people of France.

The Travelling Players have no subsidy; they are poor, but they are welded together and they linger long in the memory. They have served an audience that is France—the popular front and the old professors, the children who used to laugh at Punch in the Bois, the textile workers of Nancy, the grape tramplers of Bordeaux; and from their audience they have got something more than money, though this will certainly in time be added to them.

Photographs by Schall

Grotesque and ingenious masks are an important ingredient in the art of the Comédiens Routiers

Uncle Sebastian—*Babar and the Judgement*

The Gendarme—*Babar and the Judgement*

Shylock demands his pound of flesh—*The Merchant of Venice*

Sganarelle, the senile gallant in Molière's *The Forced Marriage*

Marphurius, the Pyrrhonian philosopher in *The Forced Marriage*

Pancrace, the Aristotelian philosopher in *The Forced Marriage*

A comic character: Olibrius the Centaur

A sinister shadow in *The Ballad of the Gallows*

The Players in the rôle of marionettes : a scene from a puppet play

Places and Products

VIII. Portland Stone

by J. E. MALLORY

The colour of London's great buildings is mainly that of Portland stone, silver-white where they are washed by prevailing south-westerly rains. Experts state that their romantically soot-darkened surfaces are subject to more rapid decay; but the stone withstands the London atmosphere better than any other and St Paul's is not much the worse for having lost half an inch all over in 250 years!

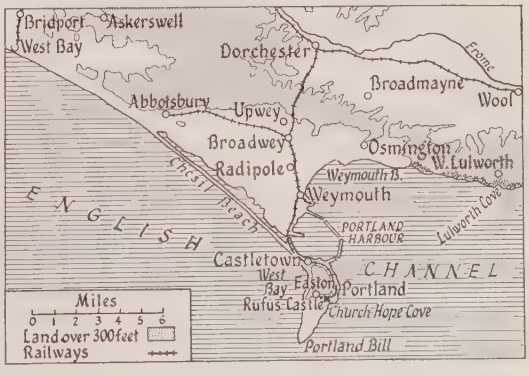
POINTING far out into the English Channel and providing a sombre background to the delicate beauty of Weymouth Bay, is the Isle and Royal Manor of Portland. Its rugged cliffs, lashed on the western side by furious Atlantic gales, are four hundred feet sheer, almost to the Bill. It is fitting that Portland's contours suggest durability and proud aloofness, like the warships that ride safely in its lee, for it has given to London and every great provincial city their grandest monuments and buildings, which stand out ashy-white against smoke-grimed granite and brick.

The qualities of Portland stone as a building material have been recognized from early times. The constant drip of rain and the soot and sulphur of smoke-polluted cities enhance its beauties. A fine and even texture allied to the fact that it is almost impervious causes it to weather evenly. The grime forms a layer which scales off, leaving the familiar silvery-grey colour which replaces the bright, lemon-tinged white.

The oldest Portland-stone building in existence is appropriately situated in Portland overlooking Church Hope Cove. It is Rufus Castle, built about the year 1080, and has walls seven feet thick. Portland Castle, built in 1520 and still used as a residence, is a striking monument to the durability of the Island's product. The Fabric Rolls of Exeter Cathedral show that it was exported at the beginning of the 14th century, and much was used for the Tower of London and the Royal Palace and Chapel of Westminster. Inigo Jones, Architect and Surveyor-General to James I, perceived its qualities and fairly launched the Island's industry. After a visit to acquaint himself with the possibilities of the stone, he used it for the Banqueting Hall in 1610, also York Gate and repairs and additions to old St Paul's and Greenwich Hospital.

It was the great Sir Christopher Wren who gave the Island a memorial of which the inhabitants are justly proud, for almost a million cubic feet of Portland stone were used in the building of St Paul's Cathedral. Seven years after the Great Fire, a Patent was issued under the Great Seal of England for the erection of the new cathedral. Wren laid the foundation stone himself on June 21, 1675, and thirty-five years later the finial stone was put in the dome in his presence. The fifty City churches stand as further memorials to Wren and Portland.

The list of more recent erections is long and imposing, for it includes the buildings in Kingsway and Regent Street, Somerset House, Bush House, Selfridges, Imperial



Portland stone was Sir Christopher Wren's favourite medium. For his masterpiece, St Paul's (above), *almost a million cubic feet of it were used.* (Right) *Bow Spire, which tops one of the fifty City churches that stand as enduring memorials to Wren—and Portland*

Another London landmark is Kent's Horse Guards building, erected in 1750. It forms the background every year for the Trooping of the Colour

The 18th-century façade of Somerset House, designed by Sir William Chambers, presents an impressive frontage along the Thames Embankment

The tradition established by Wren is still being maintained. Among the latest Portland stone buildings are Holden's new central edifice of London University in Bloomsbury—

—and the even newer Imperial Airways Terminus at Victoria; a worthy centre for services now extending as far as America, Australia and China. *(Note the figures mentioned on p. 338)*

Fox Photos

Men and machines at work in a Portland stone quarry. The stone occurs in three level strata. Immediately above it is a layer of hard, shelly rock known as 'roach'

Chemical House, the R.A.C. and A.A. buildings, the Cenotaph, Manchester Town Hall, the Bank of Egypt and innumerable others. In the future, Waterloo Bridge, Birmingham Civic Centre and perhaps many new Londons and provincial cities will spring up from the Portland quarries. James Bone gave the Island its due when he dedicated his book, *The London Perambulator*, to 'the Isle of Portland, the Matrix of London's Grandeur'.

It might perhaps be supposed that such immense inroads would have exhausted the supply of stone. But Portland, which, by the way, is not an island, though less than four and a half square miles in area, is still possessed of enormous resources. In figures, these amount to something like eighty million tons of stone, and there are sixteen cubic feet to the ton. If the industry is maintained at the 1930 peak production figure of 103,480 tons, there is a 500-year supply allowing for necessary waste.

It is amazing that much of Portland's scenery is still unspoilt. Even the worked-out quarry land is a paradise for wild flowers, and the tumbled stones and hidden paths have a beauty of their own, often enhanced by a glimpse of the blue sea and frowning cliffs. The banks of red valerian make a picture in July.

From Church Hope Cove, made famous in Hardy's novel *The Well Beloved*, running almost to the northern end of the Island are the East Weirs, an undercliff which seems to have dropped away from the plateau. It is littered with the debris of

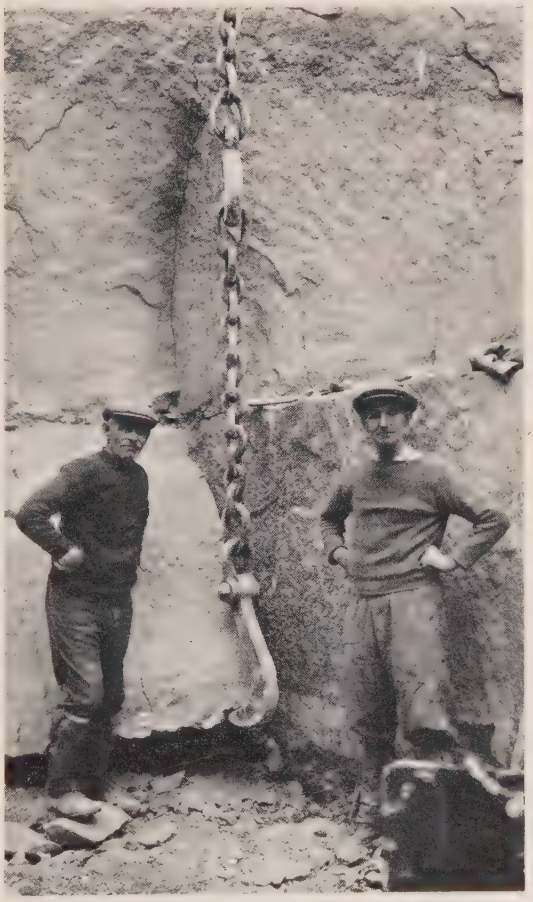
old quarries, including abandoned blocks of stone marked with an incised wine-glass, Wren's private mark, for here is the matrix of St Paul's. Wren's stones are becoming increasingly hard to find, for the easily accessible ones are very quickly bought up.

When this ground was worked, the only tools used were the primitive jack, crowbar and rollers. Advantage had to be taken of landslips, which were most common on the east side. Piers were built and the stone was shipped to London in ketches.

Building in those days was a leisurely affair far different from the bustle of today. Modern machinery now speeds up the quarrying, though the quarryman still has to exercise his skill. The stone was laid down on the bed of a prehistoric sea and occurs in three level strata separated by a thin, shelly layer. It is fortunate that these layers were not buckled in the early days of the earth's history, like the amazingly contorted strata at Lulworth Cove, only nine miles across Weymouth Bay. Since that Jurassic period, Portland has been raised and inundated twice again, and each era has left its story in the shape of fossils of all kinds—the great ammonite and the skeleton of the mammoth, complete tree trunks and delicate stone spirals which are the casts of prehistoric worms. Most of these occur in the forty feet of rock and rubble which lie above the stone. Immediately above the stone is a layer of hard, shelly rock known as roach, which is used in building piers and breakwaters. This may some day be used more extensively as it has many qualities. It was used for the base of the Cunard offices in Liverpool. Fossil shells may be seen projecting from the stone on the south parapet of St Paul's.

Twenty-four feet of top rubble are removed with pick and shovel or mechanical excavator. Fifteen feet of cap and roach are cracked by blasting, then great pieces of rock are hoisted out of the quarry and used to build up a bank in the worked-out parts. Much of the rubble is tipped over the cliffs or dumped into old quarries. No explosive is used to loosen the stone. There are frequent vertical faults or 'gulleys'. When these do not occur in convenient places, a rattling 'channeller' driven by a donkey engine is lowered into the quarry and this cuts a narrow vertical crevice in a few hours. A shallow groove is cut along the base or 'rising' of the stone. This is lined with steel plates and as many as thirty wedges are driven in to raise the stone from its bed. The rhythmical tap of many hammers and the song which often accompanies it makes 'reaming off' one of the most fascinating operations.

The crane completes the separation by heaving on the 'dog'. This is a great steel



Stone in the act of being freed by the 'dog', a steel hook suspended from a crane and inserted in a groove previously cut in the base or 'rising'

W. McWilliam

Great blocks of irregular shape are raised to the bank to be trimmed. They are split square with wedges and their sides are then 'scappled' or roughened with the heavy 'kivel'

hook which is inserted in the rising. The cable becomes a rigid bar of steel and the jib bucks violently as the oolite is torn up and the dog flies out. Great blocks of an irregular shape are raised to the bank to be trimmed. They are split square with wedges and then the sides are 'scappled' or roughened with the heavy 'kivel'. This process betrays any faults by causing the stone to split. Blocks of upwards of twelve tons are not infrequent. Probably the record stone was that presented by Stewards, now the Bath and Portland Stone Firms, to the Geological Museum in 1851. It was about thirteen feet long and from it was cut the copy of the Farnese Hercules.

When the stones are trimmed, they are painted with tally marks peculiar to the industry, to show the size and quarry of origin. The men are paid piece rates and before the depression earned high wages in quarries where there was a good 'run'. It is interesting to note that in the depression year of 1933, only 43,125 tons of stone were quarried. The managing director of the Firms gave me this figure with some hesitation, but it is a significant one. The tonnage had risen again to 61,216 in 1937. The stone costs 3s. 6d. a cubic foot at Portland Station, so the value of the industry can easily be calculated.

Much of the stone is masoned in one of the two local masonry yards. Thousands of tons leave the Island in the rough state. Some is loaded direct into railway wagons and some is exported in lorries. A great quantity is shipped from Castletown on

Portland Harbour, principally to London where it is unloaded at Vauxhall. The stone intended for the sea route is taken to the Portland Railway, or 'Merchants' Railway', as it is known locally. It is a unique line with low, horse-drawn trucks, that transport the stone round the northern rim of the Island, under the frowning Verne barracks to the top of an incline. Here they are lowered to sea-level and at the same time pull up the empties. It is an amusing little railway, one of very few continuing to pay shareholders a substantial dividend. It has had a corporate existence since 1826, but the Island had no rail connection with the mainland till 1865.

Portland stone is so tractable that it can be cut and sawn like wood. A day's visit to the masonry yards is a revelation, and permission is readily granted to those interested. Good nerves, good boots and agility are essential. The roar of machinery and the screech of giant saws cutting through blocks of stone rise in a deafening crescendo. There is none of that peaceful calm associated with the completed work. Underfoot is a thick, white sludge almost like paste, in which the unwary sink ankle deep. Overhead, busy gantries swing great stones from stack to machine and the finished masonry to lorries and wagons.

The commonest machine in use is the stone-saw, the oldest type being the sand-saw. This has three or four steel blades which have a backward and forward motion, but it is not the blade that does the cutting. Coarse sand obtained from Chesil

W. McWilliam

Rough stone for export by sea after being carried round the north side of the island on the Portland Railway. Portland harbour, the breakwater and the mainland are seen in the distance

Stacks of finished masonry destined for the Imperial Airways building and one in Berkeley Square. Each stone is lettered and numbered ready to fit into its proper place on the building site

Beach at Bridport is shovelled constantly into the cuts, while there is a constant drip of water over the saws. The friction of the sand does the cutting. These saws, with their rhythmical harsh grind, give one the impression of ponderous efficiency, while the circular diamond saws, the second type to be introduced, seem almost fierce and hungry as they bite into the stone which is fed to the cutting edge on a trolley. The diamonds are set into the edge right, centre and left alternately and require replacing about once in five years.

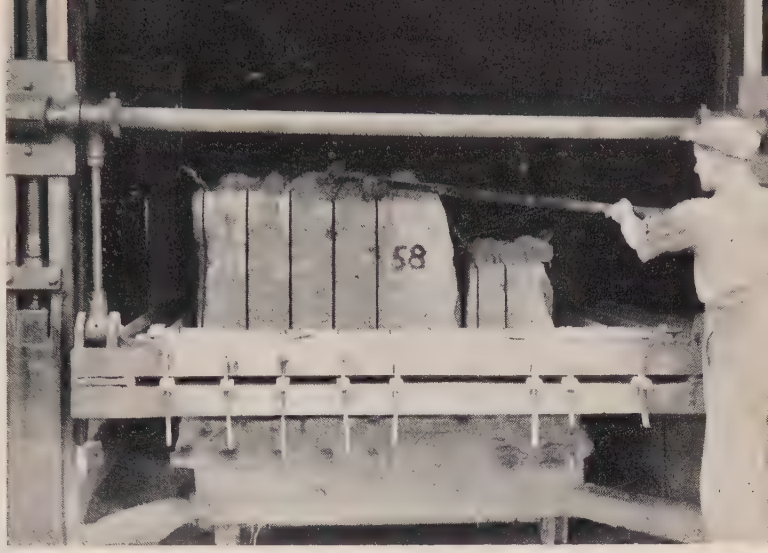
The biggest diamond saw at the works is a credit to the craftsman who has used it for almost all the forty years since it left the Paris Exhibition, for it still looks like new. It spins at four hundred revolutions a minute and will cut a block measuring fourteen feet seven inches in length and three feet four inches in height at the rate of six feet in half an hour.

Much more modern is the carborundum-saw. This, too, suggests high-powered efficiency. The carborundum rims are prepared on the premises and are replaced about once a fortnight, but the saws are in constant use.

The giant lathe, surrounded by busy saws and planers, seems superior to the other machines, for on it are cut the segments of great columns and the basins of fountains. It must often have held a ten-ton stone between its teeth. From it came the bowls on the King George the Fifth Memorial Statue at Windsor. A pair of callipers used by the mason weighs twenty pounds. On a smaller machine I saw an intent mason cutting ornamental balusters. He was supplied with rough blocks about two and a half feet long and six inches square. The cutting tools had tips of tungsten steel which cost five pounds to renew. The foreman asked me how long I thought a baluster would take to cut. I rashly hazarded two or three hours. I watched carefully, and the completed job emerged in twenty minutes.

Machines will never entirely replace the skilled banker mason, for they cannot re-

Three types of saw are used: the oldest is a frame- or sand-saw. Cutting is effected by the friction of moist sand in the cuts, under steel blades



W. McWill

The diamond saw has a revolving blade set with diamonds. Accuracy in cutting is checked with the zinc template seen in the mason's hand

W. McWill

Most modern is the carborundum saw, a model of high-powered efficiency. It has frequently to be refitted with a new rim, made on the premises

W. McWilliam

(Above) *A machine called a planer cutting the side of an octagonal jamb intended for Wolverhampton Municipal Hall.* (Below) *An ornamental column in process of being turned on the giant lathe. In addition to segments of great columns, this machine will cut such things as basins for fountains*

W. McWilliam

W. McWilliam

W. McWilliam

After the machines come the masons. With hammer and chisel they are putting final touches to the apex stone of Leeds Town Hall. How many citizens—

—of Leeds, seeing the rapid rise of their new Town Hall, realized that the speed was due to the care and exactitude of the work done at Portland?

produce the intricacies of delicate mouldings, traceries and statuary; "all skill and no stone", as the foreman said. Symbolic winged figures embracing a great globe, recently completed for Imperial Airways, called forth the admiration of the men in the yards who were not directly engaged in carving it, for none of them is immune to the beauties he is helping to create. I am often asked, "Did you see So-and-so on your holidays? I made that". It would be a delightful gesture if the owners of great new buildings would present the craftsmen with a folder of pictures showing the work which they knew only as numbered pieces ready to fall into place on the building site.

These banker masons, whose only tools are the mallet and chisel, are scattered here and there among the machines, carefully chipping rough stones and finding treasures inside. Each mason is given a zinc template which has been prepared in the drawing-office from the architect's plans and constant reference is made to this.

In a separate corner of the yards are the apprentices who work under the supervision of skilled men. Their piercing whistles rise above the roar of the machinery.

There is little wonder that the predominating name on the Island is Stone, while White must be a very close second. Of the 11,550 people permanently resident on the Island, most are dependent on the prosperity of the industry. Their characteristics are naturally insular. The right to work in the quarries is jealously guarded and invaders from the mainland are 'kimberlins', or foreigners. A new arrival is somewhat taken aback by his cold reception, but soon becomes aware of their tolerance and sympathetic to their feeling of independence. Rights are jealously preserved by the ancient Court Leet which still meets to decide levies on quarried stone and safeguard the Commoners' interests.

The men are rugged and muscular, and many walk with a peculiar rolling gait probably due to the constant swinging of the heavy kivel. Their lives are bound up with stone, a fact which some old Portlander had recorded on his tombstone in 1676. It is remarkable both as an epitaph and a literary effort:

> In life I wroath in stone,
> Now life is gone I know
> I shall be raised
> By a stone and be
> Shuch a stone as giveth
> Living breath and saveth
> The Righteous from the
> Second death.

Characterless ferro-concrete surely can never replace this stone which is the Isle of Portland's industry. Wren, Gibbs, Hawksmoor, Robert Adam and Kent could find nothing better.

C. & S. Kestin

Portland Bill

A Mountaineering Adventure in the Karakoram

by R. A. HODGKIN

Our February number contained a brief account of the disasters that have overwhelmed certain German expeditions attempting to conquer the Himalayan giants. Mr Hodgkin was one of the two members of a recent British expedition who narrowly escaped a similar disaster, at the eventual cost of their toes and parts of their fingers. Masherbrum, their objective, was unknown country to the climber before they tackled it: their experience has simplified the problem for those who may follow them

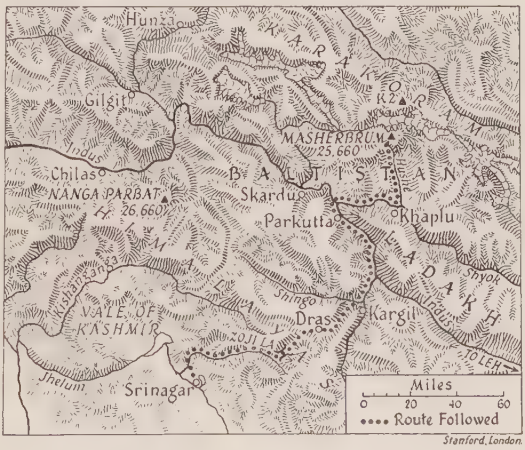
For two weeks during the latter part of March 1938, the final preparations for our expedition were made amongst the green fields and populous waterways of Srinagar, capital of Kashmir. Our objective was to climb Masherbrum or K.1 (25,660 ft.), one of the finest of Himalayan peaks. We were a small party of five climbers: Waller, who had done most of the organization, Graham Brown, Harrison, Roberts and myself. We had with us five Sherpas, those invaluable and hardy men of Nepal, without whose aid high climbing would be almost impossible. Drs Elizabeth and Arthur Teasdale travelled out later in case any medical aid should be required.

The blue mountains bounding the Vale of Kashmir, their grassy slopes streaked with snow, held but a slight suggestion of the wild country to the north, where deep, arid gorges and vast mountain chains make the Karakoram one of the most inaccessible regions in the world. For a day or two we marched through the fertile valleys of the blue outer hills towards the Zoji La, an 11,500-ft. pass which cuts a gap through the true Himalaya. Crossing this snowy steep-walled pass by star-light—a precaution against spring avalanches—our small cavalcade entered Ladakh, a region somewhat similar to Tibet.

We passed an occasional huddle of squat houses, where small groups of children blinked inquisitively at us and seemed, like their homes and the mountains about them, to have scarcely shaken themselves free of the white mantle of snow. Below the snow-level, the wild and arid nature of the country became fully apparent. Rugged, tawny hills rose thousands of feet above the track, which did its best to follow the steep-walled rivers. There was no vegetation other than a few small aromatic bushes. Yellow-cheeked lizards and small dun-coloured martins were the only living creatures to be seen.

We met one or two caravans—traders coming down the road from Leh. One day we passed a small string of ponies, one of which was bearing a pretty European girl, who, to our surprise, veiled herself like a Moslem as she passed. We gathered from reports that she was the bride of one of the several petty rajahs of Baltistan, an ancient ruling caste of whose privileges little but the title survives. She was on her way to a new home, three weeks' trek from the nearest motor road.

Four miles short of Kargil our road left



'We marched on the extraordinary path that runs along the walls of the Shingo and Indus gorges . . . sometimes built up on shelving ledges'

the Leh trade-route and for a week we marched on the extraordinary path that runs along the walls of the Shingo and Indus gorges to Skardu, capital of Baltistan. It is a country of deep gorges and high mountains where flatness is a rare and coveted luxury. Only great human enterprise, in face of the difficulties prevailing here, could have perfected and maintained the somewhat primitive civilization which, with its narrow paths and minute irrigated fields, clings precariously to these inhospitable slopes.

We followed the paths for several days. Sometimes the track was built up on shelving ledges, skilfully embanked by men experienced in the handling of stones —the only abundant raw material they have. At other places, shelves had been hewn out of the rock walls, which rise vertically for hundreds of feet above the turbid river. Occasionally the path ran out onto a hot expanse of sandy beach—for the river waters were still low.

Few great rivers can have been of so little use to men as the Indus. As Eric Shipton has remarked, 'The river itself seems to create arid desolation wherever it goes, except where human ingenuity has irrigated its banks to fertility'. In these upper waters, the fall is so slight and the means of irrigation so limited that the waters are of little service to the people. Only the small tributary streams which tumble down the valley-sides where they are slightly less steep can be used for irrigation, and it is on these that the civilization is based. At intervals of 10 or 15 miles, small villages are situated on the rocks above the river—oases of green in a desert of mountains. We passed through some when the apricot trees were in blossom, when each field of brilliant green was surrounded by pale pink foam, amongst which stood poplars like silver spears. Walking through a village one got the feeling of being in a huge rock-garden. Great boulders were interspersed with small green terraces, each built level

All photographs by members of the Expedition

A terraced village, like 'a huge rock-garden', above the Indus: 'only great human enterprise could have perfected and maintained the civilization which clings precariously to these inhospitable slopes'

A field in the making; note the wall of boulders, and the pile of earth in the background

'*One day we passed a great rope-bridge, which must have been at least a hundred yards long, like a giant yak-hair cat's-cradle spanning the Indus*'

behind a wall of stones and each fed by a minute stream for a few hours every day.

The people themselves are not an entirely attractive type. They have pronounced features, often very fine, and they wear their hair long with a shaved patch in the centre. There are too many cretins, many with large goitres, to give a really pleasant picture. But natural selection being intense, they are very tough, and carried our loads for long distances with few grumbles. Many, if trained, would make excellent mountain porters, as we later found when two Baltis, Hussein and Raheem, came as high as 22,000 ft. and compared very favourably with the Sherpas.

One day we passed a great rope-bridge, which must have been at least 100 yards long, like a giant yak-hair cat's-cradle spanning the Indus. At Parkutta we were entertained to a game of polo. The game originated in the mountainous regions of Hunza and Baltistan and must have been one of their few contributions to Western 'civilization'. Before the great event, the children with their toy sticks played about on the field in imitation of their elders. Then to the accompaniment of pipes and drums eight or ten horses and players came on. For an hour they galloped wildly up and down the field, scoring from incredible shots, appearing and reappearing in clouds of dust amid the cheers of an excited audience.

A stage or two further down the Indus we had to cross it where the Shyok flows in, as our route turned north-east up the latter river. The crossing was made in an ancient barge paddled by many Baltis, chanting together one of the sadly beautiful songs of the country, so different from the plaintive squeakings of the Tibetan. The Shyok valley is more open and sandy than that of the Indus. It is notorious for the floods which sweep along it and leave their mark hundreds of miles down the Indus. These result from the damming of the head-waters by an advancing glacier,

Crossing the Shyok near Khaplu. The river is notorious for its floods, the result of the damming of the head-waters by an advancing glacier, which produces a vast temporary lake

The Shyok valley, steeply enclosed, is more open and sandy than that of the Indus

The twin summits of Masherbrum, seen from the Hushe valley at a distance of 25 miles; 'towering above a belt of clouds, massive and commanding like the square keep of a castle'

Looking back down the Hushe valley from the foot of the Masherbrum Glacier

which produces a vast temporary lake. It forms and is destroyed with curious regularity over a period of about eight years. Though the valley floor is wide, the walls rise with great steepness, especially in the neighbourhood of Khaplu, where the spires of the Saltoro range (16,000–19,000 ft.) tower upwards to the north.

Wandering one day over the great expanse of shingle covering the valley floor, we gave frequent glances northward in an endeavour to gain our first view of Masherbrum, which we hoped would be visible 40 miles away at the head of the Hushe valley. At last we saw it, towering above a belt of clouds, massive and commanding like the square keep of a castle. Two days later as we approached Hushe, the nearest village to the mountain, we were greeted with great activity all along the path. Small gangs of men were carrying on a frantic pantomime of repairing the track for our benefit. One old man preceded me for some hundreds of yards, shifting stones which could not have hindered a child and generally expending a great deal of energy, symbolic of levelling an unsmoothable path. This demonstration of goodwill did not belie their later behaviour towards us, which was entirely helpful.

The only explorers to have visited the southern approaches of Masherbrum had left but a scant record of its topography and of the possibilities of a route to the summit. The two photographs we had seen gave no clue to the problem we now faced, that of breaking through the barrier of rock and ice precipices that barred the way to the 21,000-ft. platform from which rose the final keep-like pyramid. There were two possible approaches—by the Masherbrum and Khondokoro glaciers.

Graham Brown, Roberts and Waller explored the latter and returned with reports of impassable rock-walls and hanging glaciers. Meanwhile, Harrison and I went up the Masherbrum Glacier to attempt a route up a small steep branch

Graham Brown and the author discuss possibilities. Careful reconnaissance was needed in planning an attack on the 21,000-ft. platform below the final keep-like pyramid of Masherbrum

which we called the Sérac Glacier. We had seen this on a preliminary reconnaissance and it seemed to offer the only possible route on this side. The first section, a gully between rock and ice, was the most unpleasant. We called it Scaly Alley. On one side tall towers of ice threatened the route and from the other stones would occasionally clatter down when the sun was on the rocks overhead. Above this, having found ways round the steeper ice-falls, we reached the basin at the head of the glacier. From here a steep snow-wall 1500 ft. high had to be climbed before the 21,000-ft. platform could be gained. Having convinced ourselves as far as possible that this could be made a feasible route for porters, we returned to confer with the others at Hushe.

It seemed clear that this was the route to follow. With 60 laden porters we were

A view north-west from near 'Quartzite Peak', which the Bullock-Workmans reached in 1911, showing the great rock- and ice-wall at the head of the Masherbrum Glacier

given a send-off by crowds of their friends and relations as we crossed a frail bridge and set off towards the glacier snout six miles away. Our straggling cavalcade consisted of a motley crowd of Baltis of all ages, their loads slung precariously in a web of yak-hair rope and blankets. Only the Europeans, two sheep and a few fowls escaped heavy loads. After an hour or two in a juniper forest we reached the glaciers. Much of the time we marched along the crest of a high lateral moraine with the tumbled complexities of the glacier on one side and occasional sand-flats or a blue lake on the other. Once we put up a grey heron which wheeled above us for a few minutes and then departed, resentful of our intrusion.

At our first camp on one of the gravel flats, a sheep was misguided enough to try and escape up the mountain side. It was pursued in vain for some time, but was eventually out-generalled, brought back more dead than alive, and then unashamedly eaten. A few more hours' boulder-jumping along the moraine brought us to the base-camp site, an hour short of the Sérac Glacier.

In order to make Scaly Alley safe for laden coolies, we had brought with us two ladders for bridging some wide crevasses. Thus equipped, like early Alpine pioneers, an advance party set out to cut large steps and fix ropes and ladders in the difficult first section of the Alley. Preparations completed, we carefully shepherded five strings of six porters up to the easier snow above. Passing by the intricate hummocks of the glacier and beneath black cliffs on our right, we reached the site of Camp I.

Any detailed record of the ascent of a high mountain easily becomes tedious on account of the frequency with which one must cover the same ground, making continual relays of loads. I will telescope the events of the following week—a week of hard work, when our numbers were depleted by the mutiny of most of the local coolies, and when we overcame the 1500-ft. snow-wall leading up to the 21,000-ft. platform. Here, in a fairly optimistic frame of mind, we pitched Camp IV near the foot of the final pyramid.

Having had any excess of optimism damped by a two days' snowstorm, three of us explored an ice-tongue which led to the highest section of the platform, enclosed by the south-east ridge, the east face and the east ridge of the mountain. It was with the intention of finding out which ridge or face would be the best

'Passing by the intricate hummocks of the Sérac Glacier and beneath black cliffs on our right'. The party on the way to the site of Camp I (17,000 ft.)

A foreshortened view of the route from Camp I, below the Sérac Glacier basin, up steep slopes of ice and snow, to Camp II and Camp III (20,875 ft.)

Looking eastwards from Camp VI (23,400 ft.) over the col between the subsidiary Masherbrum peak and the north-east ridge. From here the party ploughed their way onwards in deep snow

route to the summit, and also with the idea of making a tentative attempt on the top itself, that Harrison and I pushed on with two Sherpas on 14th June. That day and the next, in poor weather which rarely allowed us to gain a clear idea of our whereabouts, we plodded resignedly upwards to pitch Camp VI (23,400 ft.) on the snow and ice slope of the east face. Somewhat disgruntled by the weather, we turned in that night hoping for a fine day, but fully expecting to be forced to retreat by another poor one.

Our pessimism was dispersed and our hopes justified next morning, when we looked out on a perfect day. One Sherpa, however, was unfit; so, sharing his load between the three of us remaining, we picked a twisting route up the face. As we ploughed our way in the deep snow or chipped steps in an occasional ice-bulge, our weariness was mingled with more exultation than usual, for we saw sinking below us many landmarks that had become only too familiar as being always above. At 24,400 ft. we were fortunate (or thought we were) in finding a good camp site—a slight ridge projecting out from the main slope to a small ice-point. Having watched our Sherpa safely retrace the track to Camp VI, we pitched our tiny tent beneath the friendly ice-point.

The next day looked almost as good as the last and we started soon after the sun had risen. Despite the early hour the snow was soft and demanded a great effort. After several hours of wearisome going, we reached some rocks which seemed to offer a better route to the east ridge. They looked easy, but after we had climbed a hundred feet or so it became clear that we had been deceived in them, for they

were iced up and offered a much tougher problem than we had expected. Also a cold wind was making itself felt, enveloping us in occasional snow flurries and numbing our hands. At about noon, having reached a height of some 25,000 ft., we turned back, realizing that this attempt must be abandoned, but satisfied by the knowledge that we had simplified, if we had not solved, the problem of a final route to the top. Back at Camp VII we found ourselves to be slightly frost-bitten and spent several hours restoring circulation by massage. As darkness approached the sky clouded over and we counted our stores, knowing that if the deterioration continued, we might be isolated for some days. We dozed off that night, fearful of little but the possibility of a prolongation of our stay in these cramped quarters.

At about 5 o'clock that morning we were suddenly woken by a dull roar. It might have been a large distant avalanche or a small one close at hand. We were not long in doubt, for in a moment it was on top of us. The tent caved in. Snow pressed in all round us. I struggled almost automatically into a kneeling position, my nose to the ventilator. Fearing avalanches most of all Himalayan dangers and having been warned by such terrible and unpredictable accidents as that which destroyed the 1936 Nanga Parbat expedition, I felt for a moment that we also were to be killed. But suddenly the din stopped. I burrowed out into the pale grey dawn. I could see scarcely a trace of an avalanche, no ice-blocks or churned show. It was evident that the snow which had slid onto us had come from the small ice-point which had been the making of our camp site.

Above Camp VII, at about 25,000 ft. The highest point reached was halfway up the rocks in front; after returning to Camp VI the climbers were almost overwhelmed by a snowslide

There was no alternative but to salvage what we could from the buried tent and try to return to Camp VI. Visibility was bad when we started, but little snow was falling. Soon, however, a strong wind had risen and was blowing snow and hail straight at us up the slope. This steadily increased in intensity. Progress of any kind became impossible in the teeth of this blizzard, which froze bars of ice to our eyelashes after five minutes' exposure. We sought the scant shelter of a shallow crevasse and tried in vain to keep the blood circulating in our limbs. Attempting to blow up an air-mattress for use as a windscreen, I fumblingly let it drop. It was sliding away twenty feet below us when a sudden gust of wind caught it, blew it up into the air and landed it back in our crevasse. That was the only good turn which we could credit to the appalling gale that raged that day. Once we gave a shout and the wind tossed back voices which were not ours. Waller and some Sherpas in support below had heard us and come out to search, but the frightful conditions soon forced them back. In any case, they had scarcely any idea of where we were or what we wanted. With a slight lessening of the wind and the knowledge of our comparative proximity to Camp VI, we made a final attempt to fight our way down. We covered a few hundred yards most laboriously.

As afternoon turned into evening, we realized that once more we must find shelter or spend a night out in a blizzard that no one could have survived. So we climbed down a crevasse and on a small snow ledge fifteen feet from the top we made ourselves as comfortable as possible with our sleeping-bags and air-mattresses. Occasionally breaking the monotony with some cold food (we had no fuel with which to melt snow or warm water) and sometimes being disturbed by falling lumps of snow, which would nestle snugly in the mouth of my sleeping-bag, we passed the night coldly and resignedly.

Next morning we were beginning to feel the weakness which long exposure at a high altitude induces. With fumbling, frozen fingers we pulled on our boots, donned our sacs and climbed laboriously out of the crevasse. The weather was much less severe and we were able to make fairly good progress down the slope. It was not long before we saw with relief the half-buried tents of Camp VI below us. As we approached, a Sherpa scrambled out to meet us, carrying a pan of dirty water. We gulped it down with relish, having drunk nothing for 40 hours.

That afternoon we were able to go down to Camp V, where Graham Brown and Roberts were in support. The severity of our frost-bite made it clear that descent was imperative, especially as Graham Brown and a Sherpa had also been affected, though to a lesser degree. The descent to Base-Camp was uneventful, though walking became progressively more and more painful for those with frost-bitten feet. The medical equipment we had brought with us was of necessity limited. Thanks, however, to the untiring efforts and splendid ingenuity of the Teasdales, who had joined us in case any such apparently improbable event should occur, the damage done by the frost-bite was localized to our hands and feet.

The journey of 280 miles back to civilization was made by Harrison on a stretcher and by me on a horse. The days were long and sometimes anxious, but our mood was tinged with joy at the wonderful country through which we passed and with appreciation of the friendship of our companions. If some misfortune be the price of our mountain adventures, we can have few regrets. Some risk is inherent in this sport, where the vagaries of weather and snow play an often incalculable part. Resentment of danger when it strikes too hard is incompatible with our love of the mountains.

The Culbin Sands

by ALASDAIR ALPIN MACGREGOR

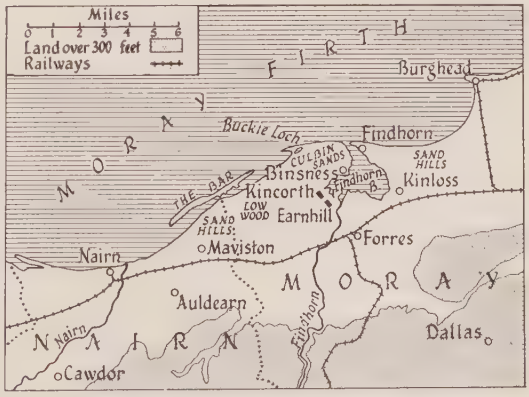
The 'Tragedy of Culbin', even in the form to which Mr MacGregor allows us to give credence, makes a romantic story. Add to this the interest of the archaeological remains that the shifting Sands may reveal to any visitor, as well as the fact that 'the nearest approach to a desert in the British Isles is rapidly disappearing', and you have attractions that should induce anyone making a tour of Scotland to include the Sands in his itinerary

POPULAR belief has it that during a single night, in the autumn of 1694, the rich barony of Culbin in Morayshire was engulfed by drifting sand. We shall see later how far this tradition may be credited; but there is no doubt that a terrific storm, in that year, finally sealed the doom of a once-fertile district. The 'Laich-lands o' Moray', of which it formed an important part, were deemed of old the most productive farmlands in all Scotland. Today, much of that fertile territory lies buried beneath the wilderness known as the Culbin Sands—the only region in the British Isles where sand fields, dunes, and sandy swamps comprise an area sufficiently large to justify its being regarded as a desert in the ordinary sense of the term.

The landward margin of the Culbin Sands runs in close proximity to the town of Forres, in Morayshire. On the north and west, the desert area is bounded by the sandy shores of the Moray Firth. On the south, it merges with the rich, alluvial plains of Moray, its farther encroachment upon which has been arrested during the past century by various reclamation schemes. To the east, the Culbin Sands are bounded by Findhorn Bay, that wide expanse of tide-washed sand brought down from the Highland hills through the ages by the Findhorn, a river that, judging by historical documents and the results of geological research, has had a career almost as erratic as that of its neighbour, the Spey. The vast shingle deposits and the 'winter' lochs scattered about the Culbin, many of which lie a considerable distance from the Findhorn's present course, were obviously part of that river's bed at various times.

It may be appreciated, therefore, that the origin of the Culbin Sands is inseparably bound up with the behaviour of the Findhorn, particularly near its mouth, in conjunction with the action of prevailing winds and tides. And it is equally true to say that, before this vast area was overwhelmed by sand, it owed its peculiar fertility to the silt carried down by the Findhorn in flood through the centuries.

What the River Findhorn contributed in the east toward the formation of the Culbin Sands, the River Nairn, though to a lesser degree, supplied on the west. Owing to the fact that the direction of the tides along the impinging shore of the Moray Firth is from east to west, immense quantities of sand and shingle, in the form of hills, dunes and tide-formed bars, have accumulated to the west of Findhorn Bay. Sand hills of considerable dimensions are to be found as far west as Maviston. Offshore in this locality, and stretching a distance of between four and



On the coast-line near Culbin, to the west of Findhorn Bay, the tides of the Moray Firth have accumulated immense quantities of sand and shingle, forming hills, dunes and bars

five miles, is a bar of sand and shingle that constitutes one of the most interesting features of this highly complex area.

So far as is known, there exists no map of the Culbin Barony prior to its devastation by sand toward the close of the 17th century. This is unfortunate, in that we are denied accurate information as to the number and precise distribution of the farms, buildings and woods overwhelmed at this time. Such records as are available, however, show that Culbin covered some 3500 acres, embracing sixteen fair-sized farms and farmhouses, in addition to the home farm, which for generations had been worked by the Kinnairds, a family that became owners of this fertile estate about the middle of the 15th century. Each tenant farmer paid to his superior an annual money rental of two hundred pounds Scots, together with forty bolls of wheat, bere, oats and oatmeal. Besides the farms, the lands of Culbin carried several crofts, the occupants of which added to their resources by fishing the Findhorn and the neighbouring waters of the Moray Firth. When we compare the Culbin of today with what we read of it in ancient documents, we realize how rich and prosperous this area once was. A charter dated 1586 describes it as follows: 'The Mains of Culbin, hill of Findhorn . . . the ferme coble of the water of Findhorn . . . the fishing commonly called the Stells of Culbin . . . the lands of Mackrodder, alias Mirrietown . . . lands of Aikenhead, alias Ranchkers . . . the lands of Binn, alias middle Binn . . . lands of Laik and Sandifield . . . lands of Delaith, alias Delpottie, with the mill of Delpottie . . . the Manse and Chapel of Saint Ninian . . . lands of Earnhill . . . Easter Binn'.

Of these places, only Earnhill and Easter Binn (Binsness) exist at the present day: the others lie under mountains of sand; and their location is little more than a matter of guesswork.

Documentary evidence also shows that the Culbin, in the heyday of its prosperity,

carried a fair population, and had its own place of public worship—probably the Chapel of St Ninian just referred to. The sand-strewn site, whereunder the chapel is said to lie, goes by the name of the Chapel Hill to this day. Besides this, there was the laird's mansion house, a large, square building of dressed stone, in keeping with the income derived from his profitable heritage, set down amid gardens and orchards. On a knoll near at hand stood the dovecot, to which the lands of Culbin were entitled in olden times, as a right of barony. And so mild and equable was the climate that when agricultural areas less favourably situated were having their crops and harvests damaged by frosts, storms, or droughts the fair lands of Culbin were giving forth a bountiful increase. Tradition has it that the orchards yielded more fruit than the inhabitants could consume. Add to all this the profitable salmon-fishings attached to the barony, and we get some idea of the luxury enjoyed by those who owned this estate during the 15th and 16th centuries. Indeed, to quote the words of the late Sheriff Rampini, 'nothing that could conduce to the comfort and convenience of the lairds of "Coubine" was wanting'.

But, at varying intervals throughout historic times, drifting sands and advancing dunes and sand hills had threatened to lay desolate those fertile lands. During the 11th century, the whole of the low country of Moray was deluged by the sea. By the beginning of the 12th, successive sandstorms had already begun to make serious inroads upon agrarian life. The storm of 1676 gave to the huge sand hills at Maviston fresh impetus in their attack

Northern Pictorial

Scattered about the Culbin Sands are numerous 'winter' lochs which apparently at various times formed part of the River Findhorn's bed, though many of them now lie far from its course

The whole aspect of the Sands may suddenly be altered by a violent wind. Here the sand hills are seen (above) *retreating from the old land surface and* (below) *advancing inexorably over it*

upon Culbin, and did much to prepare the way for the final overthrow, some twenty years later.

Persistent as are traditions of a great sand storm that descended one night in 1694 so unexpectedly that harvesters were compelled to abandon their scythes in the fields, and ploughmen to leave their shares in the furrows, finding scarcely enough time to unyoke their horses, there is reason to believe that things did not happen quite so swiftly and dramatically. However intense may have been that sand storm, scientific experiments have demonstrated that no such storm could have devastated this area so completely in a single night. Any given wind can transport only a certain weight of sand in a given time. The wind sweeping the Culbin in 1694 is credited with a power that, in the light of recent calculations, is simply fantastic!

Nevertheless, there is no doubt the storm that broke on this particular autumn evening wrought irreparable damage, smothering homes and farmlands in waves of mounting sand, since it appears to have been a storm of prolonged duration and of unusual intensity. A lull, it is recorded, gave rise to the hope that the complete destruction of Culbin, so often threatened in previous years, might yet have been averted. But, with the resumption of the gales on the morrow, choking the delta of the Findhorn with lofty mounds of drifting sand, all hope of retrieving the fortunes of this barony, once so prosperous, was abandoned.

Despite some partial diminution in the area under cultivation by previous encroachments, the rental of the Culbin estate in 1694 was still quite appreciable. It was estimated at 2720 pounds Scots, 640 bolls of wheat, 640 bolls of bere and 640 bolls of oatmeal. (A boll was equivalent to six bushels: £1 Scots corresponded approximately to 1s. English, though one must be cautious when making such comparisons because of the immense differences in prices and purchasing power.) To this rental should be added what accrued from the salmon-fishings.

Though the suddenness and severity of the sand storm of 1694 may have been exaggerated, it destroyed the fortunes of the lairds of Culbin, the luckless Kinnairds. With the ruin of their estate, they disappear completely from local history. In the summer of 1695, less than a year after this terrific invasion of sand had laid waste his fertile and populous heritage, we find Alexander Kinnaird, the laird, petitioning Parliament to exempt him from paying cess, on the ground 'that the best two parts of his estate of Culbin, by an unavoidable fatality, was quite ruined and destroyed. . . .' In granting him the relief he asked, Parliament, largely as an expression of sympathy with him, proceeded to pass an Act prohibiting, under severe penalties, the pulling of bent, broom or juniper bushes growing on the sandhills and by the coast at Culbin and places similarly threatened. This Act is still on the Statute Book. It was held that the indiscriminate pulling of such vegetation had contributed largely to the ease with which sand, wind-borne from adjacent dunes, had drifted over the orchards, woodlands and fields of the Culbin. By this time, however, matters had become so serious for the laird and his family that he felt obliged to apply to the court for personal protection against his creditors, on the plea that three-fourths of his estate were irretrievably overblown with sand, and that already steps had been taken to sell the remaining fourth, in order to enable him to meet what debts he could.

In 1696, the year following the presentation of the laird's petition, he disposed, 'with my goodwill and blessing', of part of his estate to Alexander Duff of Drummuir. Shortly afterwards, both he and his wife were dead. An old servant of the family now took charge of their infant son and brought him to Edinburgh, where she strove to make a livelihood,

A scene at Maviston. Pine forest, formerly engulfed by the sand hills, has been exposed by a storm, leaving bare dead stumps which may have been buried for many generations

both for him and for herself, by needlework. When the boy came to adolescence he enlisted in the army. In 1743 he died without issue, having attained the rank of captain. And that seems to have been the end of the hapless Kinnairds.

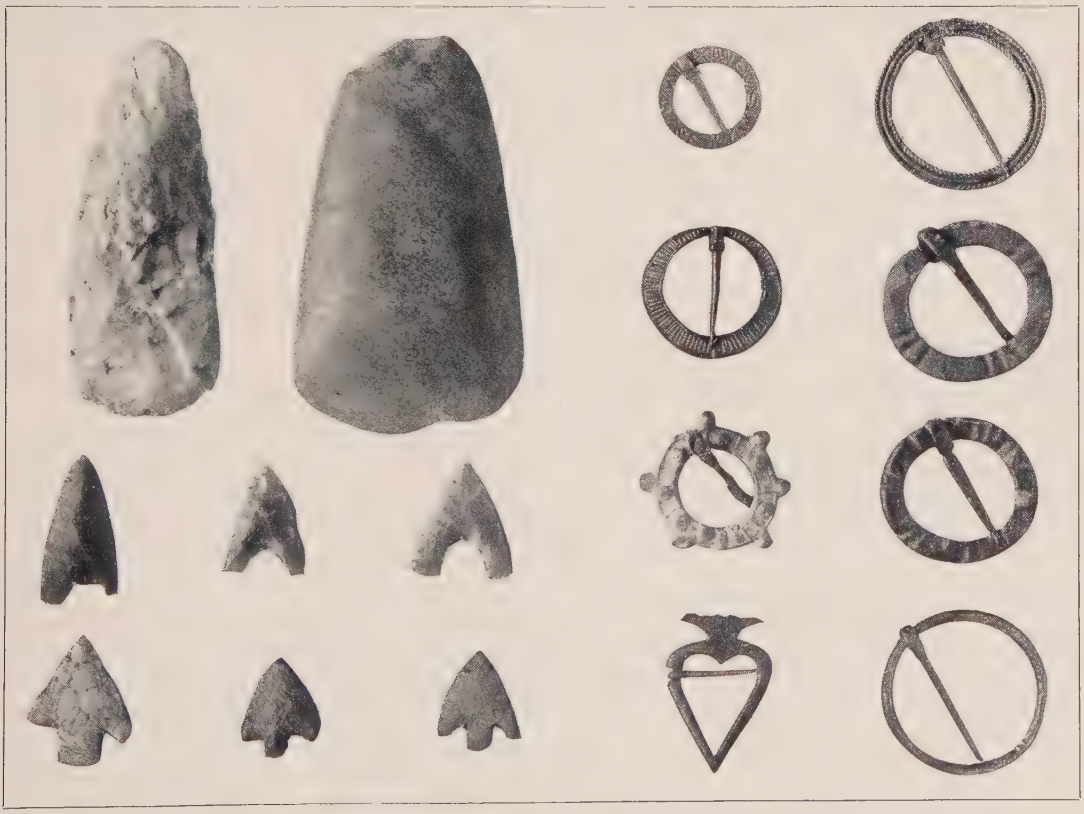
The catastrophe that befell this countryside, once so smiling, distressed and mystified its inhabitants, who ascribed their fate to all manner of causes. Some sought to explain it as a judgment from above: many of them blamed the laird because he consistently had shown so little respect for the Sabbath, and preferred card-playing with the Devil Himself to observance of the rites that heretofore, they claimed, had rendered them immune to such calamity. And there were some who actually regarded it as a curse upon them, because of their having secreted smugglers and their illicit wares among the sand dunes by the shore. Yet, despite the rapidity with which this prosperous demesne was being encompassed by moving sand hills, it is said that several tenants hung on in the hope that the gales would abate, or perhaps even alter their direction, and thus convey these tons of sand back to the dunes whence they had borne them. In the end, however, they had to abandon the fight.

At varying intervals since 1694, traces of the Culbin have been exposed temporarily, and then covered up again. In 1800 a blinding sand storm, which lasted for days, altered entirely the face of this desert, moving immense sand hills from one part to another, obliterating some of them completely, and exposing elsewhere the stumps of trees killed by dunes that had passed over them. Here and there,

too, were laid bare stretches of furrowed fields that had been hidden for more than a century. On this occasion, part of the laird's mansion house was uncovered, when one of the large sand hills concealing it was dispersed by the winds. While it lay visible and tangible, people from the neighbourhood proceeded to carry away, for building purposes, many of its substantial and finely dressed stones. But scarcely had they commenced their dismantling operations when the winds returned, burying the mansion house once more in fathoms of sand.

Some time later, according to local tradition, one of its chimney-tops was observed protruding from the sand. It remained visible for several days; and it is said that many people travelled expressly to Culbin to see this curiosity. However, one night the sands began to drift again, with the result that the chimney was gone by the following morning.

As recently as the close of the 19th century, there resided in the Culbin neighbourhood an old man who recollected having seen the walls and other parts of a house that the winds had exposed about 1860. Not since that date, I believe, has so much as a stone of any of the old buildings been seen. So extensive during the intervening years have been the changes wrought by wind on this vast expanse of sand that, today, the whereabouts of the mansion house, and of the gardens and orchards once adjoining it, are a matter of mere conjecture. Now and again, evidence of fruit-trees has appeared. There lived on the margin of the Culbin Sands some fifty years ago an octogenarian, who



Neolithic axes, flint arrow-heads and brooches of various dates, found at Culbin and preserved in the National Museum of Antiquities of Scotland, testify to the long occupation of the district

used to relate how, in his youth, he once found the branch of an apple-tree sticking out from a sand dune. From time to time he visited it, as long as it remained exposed. One year it budded, blossomed and fruited; and this old man remembered the autumn he carried home a quantity of its fruit.

In spite of the somewhat exaggerated accounts of the storm of 1694, it is amazing how completely the aspect of the Culbin Sands may be altered, even in a few hours, by a violent wind. Sand hills measuring as much as 130 feet in height, with a base roughly 500 yards in length and over 200 yards in breadth, have been known to disappear entirely in a night.

Of the many stories still recounted in the North, demonstrating the speed with which a gale can alter the face of the Culbin, is one associated with the days when smuggling was a lucrative traffic among the fishing communities scattered along the shores of the Moray Firth. A foreign ship, laden with contraband, ran ashore on the Culbin coast. In order to avoid detection, the crew instantly unloaded the cargo, and proceeded to conceal it at the base of a sand hill. During the night, however, a powerful gale sprang up, with the result that, when morning came, the smugglers could locate neither the sand hill nor their contraband. Search-parties were organized immediately, complete with carts, spades, shovels and long poles for the purpose of probing the sand—all to no use! From time to time thereafter, unsuccessful attempts were made to retrieve this cargo, which is said to have consisted mainly of brandy and tobacco. So, to this very day, the smugglers' cargo lies beneath the sands that overwhelmed a barony.

Archaeological discoveries indicate that Culbin was a settled community at a very early date. Of the relics found, perhaps the most interesting are the beads, since these embrace specimens of the Bronze Age, of the Iron Age (Romano-British times), and of a period that, obviously, is comparatively modern. Among these eerie wastes flint implements, fragments of pottery, pieces of iron and brass, bronze ornaments, and coins dating back to Roman times have been found at different intervals. In the National Museum of Antiquities of Scotland, at Edinburgh, are exhibited hundreds of fine specimens of flint arrow-heads picked up on tracts of the Culbin temporarily blown clear of sand. In this museum, too, may be seen brooches ascribed to the Bronze and other Ages, ancient fish-hooks, pins and jet beads. I myself, on more than one occasion, have found a number of flint arrow-heads and celts where the wind has blown away the sand. In several houses in Forres itself there are many and varied relics that, at one time or another, have been picked up on this desert. Some persons, I believe, possess silver spoons found among the Culbin dunes. Perhaps these spoons once formed part of the plate belonging to the vanished Kinnairds.

It was not until considerably more than a hundred years after the final destruction of Culbin that any serious attempt was made to prevent further encroachment by the sand, or to reclaim the vast territory that by this time it had conquered. In 1839 Grant of Kincorth commenced the planting of conifers on the landward side of the sands, so as to stem the advance of a series of sand hills. The success attending his effort encouraged neighbouring proprietors to similar activity. From this time date the several attempts that, in places, have been made to fix the sands. Although a considerable area of Culbin still consists of unclaimed dunes and sand hills, certain stretches of it have been fixed by broom, by bent or marram-grass, and by other plants suitable to desert conditions. Encouraging results were obtained with the planting of the flat area shown on the Ordnance Survey map as Low Wood. Toward the end of the Great War, this wood was felled; and it was recognized

Reclamation on a large scale at Culbin was begun by the Forestry Commission in 1922. It now owns about 5500 acres, of which more than four-fifths have been planted with conifers

that, had this tract not been replanted as soon afterwards as was feasible, sand storms would have devastated land already reclaimed in the vicinity through the efforts of private owners. On the east of Culbin, just before the war, the late Mr Chadwick of Binsness put down a number of successful plantations of Corsican pines.

The first attempt at reclamation on a large scale was started in 1922, the year after the Forestry Commissioners began to acquire land at Culbin. At the present time, the Forestry Commission owns roughly 5500 acres, consisting of sand dunes, partially fixed, of several moving sand hills, and of the felled and replanted region known as Low Wood. Up to date, the Commission has succeeded in planting more than four-fifths of the area it controls —approximately 4500 acres, or more than five square miles. Its initial activities were directed mainly toward the areas of felled woodland, as in the case of Low Wood, where the sand, covered to a large extent by heath and heather, already was fairly firmly fixed. The fixing has been achieved either by the systematic planting of bent, or by the thatching of the dunes with branches of broom and birch growing in the neighbourhood, and often found flourishing under these semi-arid conditions. Such branches are laid with great care and diligence, and then pegged down, in order to prevent their being disturbed by winds. Tufts of bent, consisting of the leaves and part of the root-stock, are dibbled into the sand at intervals of twelve inches or less. The sand tends to be held together with the ramifications of the root-stock, while the leaves or blades help to shelter it from the winds. Difficulty in fixing the sand with bent is often experienced where the wind has scooped out large holes or pockets in a dune or sand hill. Such excavations, therefore, require to be carefully thatched with birch or broom branches.

Once the sand has been properly fixed,

Northern Pictorial

Before trees can be planted, the sand must be properly fixed; this is done either by thatching the dunes firmly with branches of broom and birch—

Northern Pictorial

—or by the systematic planting of bent. By the ramifications of its roots this grass holds the sand together, while its stiff leaves hamper wind-erosion

Trees suitable for dry conditions are planted on the sand: Corsican and Scots pines and Douglas firs. Spruce would need too much moisture

The wind is still the forester's enemy even after trees have rooted: a young fir from whose roots the sand has been blown clean away

The wind's power at a much later stage of growth is shown by the fate of these 30-ft. trees planted by a private owner about 1900

the area is planted with small conifers, which are two or three years old, and have been transplanted once or twice in the nursery, before they are finally planted out in the sand at intervals of from four to five feet.

The three conifers which have proved the most successful are the Scots pine, the Lodge Pole pine and the Corsican pine. The plantations of these, in the main, are in a flourishing condition, many of their oldest trees, planted just sixteen years ago, having grown to a height of twenty feet.

Apart from devising methods calculated to arrest the movement of the larger sand hills, perhaps the greatest problem confronting those engaged in reclaiming the Culbin Sands is that of the 'winter' lochs dotted about this desert. These lochs, so called because they are non-existent during the greater part of the year, are filled with brackish water after heavy rains throughout the winter and early spring months. Difficulties of a peculiar nature have had to be overcome in the draining of their sites. In this part of the work, the species of Western American pine known as the Lodge Pole has proved of great service. Today, many of these pines, planted in 1922 where the sand already was covered with heather, are twenty-five feet in height. This particular conifer received its name from the Red Indians, who found its straightness of value to them in supporting their wigwams.

Apart from these 'winter' lochs, the Culbin Sands embrace one fairly large sheet of water all the year round. This sheet, known as the Buckie Loch, is situated on the flatter stretch of sand lying between the sand hills and the shallow-shelving shore of the Moray Firth. Together with the adjacent marshy territory, it obviously formed part of the Findhorn's old course. The extent to which the planting of pines has tended to dry up areas of the Culbin Sands that formerly were regarded largely as swamps has been very noticeable. Not only have several of the 'winter' lochs disappeared almost completely, but the Buckie Loch has contracted considerably. During a hot and rainless summer, the area it occupies is quite small in comparison with that indicated on many recent maps and sketches of the Culbin Sands.

The activities of the Forestry Commission are being extended eastward to the region in which are situated the greatest sand hills of all. Here, as in the case of the low, swampy areas, the work of reclamation demands exceptional skill and patience. In the meanwhile, of course, constant supervision over such parts as already have been retrieved from the desert has to be exercised, for, once the sand breaks loose, it advances with great rapidity, threatening to bury a thriving plantation. Moving sand at the present time is in process of burying Corsican pines planted on the Binsness estate by a private owner in 1900. I myself have seen, in this locality, trees thirty to forty feet in height with no more than the tops—a mere foot or two of them—protruding above the sand drifts. Where thatching and planting operations are in progress, therefore, it is important that the sand should be disturbed as little as possible. This explains why the Commission has been anxious to discourage the public's access to the Culbin Sands.

With the rate at which afforestation is proceeding, it would seem as though both the loch sites and the greatest of the mobile sand hills—the Commission's two most ticklish problems—may be fixed and planted within the next twenty years or so. Difficulty is already experienced in plotting the Culbin's physiographical features. In a few years' time, most of these features will have been obscured completely.

Meanwhile, as Mr J. A. Steers observed in the excellent paper he read to the Royal Geographical Society in 1937, the physiographer cannot help regretting that the nearest approach to a desert in the British Isles is fast disappearing.